JANUARY 1951

The American City

Our Cities' Role In The National Emergency

I summon all state and local leaders and officials to cooperate fully with the military and civilian defense agencies of the United States in the national defense program.

—From President Truman's proclamation of a national emergency, issued December 16, 1950.

One of the most difficult tasks which confronts the American people is the maintenance of the essential elements of our democratic institutions while we marshal and mobilize the full resources of our nation.

—From policy statement on Civil Defense adopted by the American Municipal Association, December 6, 1950.

We are committed to a titanic contest in which the proper utilization of our resources may prove the ultimate determinant of our strength.

—From the report of the President's Water Resources Policy Commission, made public December 17, 1950.

Whether this titanic contest shall spew forth a terrible war or give birth to the long-sought age of peace, no man can now know. But present obligations are inescapable.

AN IMMEDIATE CHALLENGE to municipal officials and civic organizations is the strengthening of local self-government in the current national emergency, and determination of how best to minimize destruction if war cannot be averted. A concurrent challenge is the forward look—how to assure the long-term physical security of our land and people, as exemplified by local, state, and national cooperation in developing scientific and coordinated plans for the use and control of water and of other essential resources, natural or man-made.

MUNICIPAL DECISIONS during 1951 must recognize these challenges. And federal authorities must avoid any unwise curtailment of vital municipal functions. These are such services as water supply, sewerage, street construction and maintenance, light and power, fire and police protection, refuse sanitation, and snow removal, essential to the efficient functioning of the modern city.

CITIES ARE THE BULWARK of our democracy and of our economy. We must not let them deteriorate.

(See also editorial comment on page 5 of this issue)

Formerly a 16-foot side street ··

··· now a 6-lane boulevard

Dawson Street, today one of the principal thoroughfares of Wilmington, N. C., is served by resilient, heavy-duty Texaco Asphalt paving, laid by Towles-Cline Construction Co., of Wilmington.

Wilmington, N. C., widened Dawson Street in order to by-pass through traffic around the congested business district of the city. It was a major operation. Many large trees bordering the old, narrow street had to come down and a number of homes moved back, to provide the necessary right-of-way.

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See pp. 25, 27, 29, 30, 32, 34, 147, 149, 151, 153, for catalogs and publications on municipal subjects.

List of Coming Conventions, page 145

Index to Advertisers, page 208

Copies of this issue printed, 21,500

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It aims to be big in the conduct of the business—in its plans for the future—in doing its full part in helping to keep America secure.

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Our Municipal Notebook

The Third Time in a Third of a Century

THE quotation on the front cover of this issue, from President Truman's emergency message of December 16, recalls President Roosevelt's radio address of December 9, 1941:

> *Together with other free peoples, we are now fighting to maintain our right to live among our world neighbors in freedom and in common decency, without fear of assault. . . .*

And this brings to mind, also, President Wilson's challenge to his fellow countrymen of April 15, 1917:

> *This is our opportunity to demonstrate the efficiency of a great democracy, and we shall not fall short of it.*

Thus for the third time in a third of a century the American people are called on by their elected leaders to prepare to defend not only their country but the flame of liberty as well.

Let none doubt that the response will be adequate. The greatness of our people is that three such calls can be made in so short a span without the third falling on tired ears and faint hearts.

Our outstanding and unique resource is free men and free women. Our others are raw materials and superb industrial skill and initiative in devising, shaping, and producing the products of peace and of war. The immediate objective for municipal officials and local civic organizations is to organize for disaster should it strike, and to that end to be ready with a practical plan that is thoroughly understood by the people and can be carried through by their responsible leaders.

But the government's very need for maximum production and for the wholehearted support of the people carries with it an obligation to see that the basic needs of the cities and of the people are not unwisely curtailed. Ability to produce is at a far higher level than in 1942. Goods of all kinds can be manufactured in larger quantities than heretofore thought possible. A measured proportion of these should be allocated to fill essential maintenance and replacement requirements of the public services mentioned on the front cover. These are the services that help to sustain popular support, cooperation, and production. Their very presence instills confidence and strengthens the will to win. But the emergency calls, of course, for the minimum of waste and the maximum of efficiency in municipal operations from top to bottom.

THE AMERICAN CITY believes that local governments throughout the United States are better organized and better equipped for patriotic service of a high order than in any previous crisis in the nation's history. And we look to them to rise to the present challenge.

The Millennium of the Council-Manager Plan

WHEN THE AMERICAN CITY published, in June 1911, an article by Richard S. Childs suggesting the then novel idea of a council-manager charter for cities, the editor little thought that within four decades this magazine would be able to report the spread of the plan to a thousand municipalities and counties, large and small, throughout the United States and Canada.

That milestone having been reached last month, it seems fitting that special attention be given in the current issue to the advantages of this rapidly spreading form of local government. Mr. Childs contributes the article to be found on pages 69 and 70; and T. Nelson Parker, Mayor of Richmond, Va., tells his story—as he did before the National Municipal League convention a few weeks ago—on pages 80 and 81.

In complying with THE AMERICAN CITY'S request for a statement signalizing the 1,000 mark in council-manager charters, Mr. Childs wrote:

"Ask me about all this again in 1960, if I am still articulate. I expect to be able to report then that the council-manager plan has become the commonest form of municipal government in the United States."

This improved type of city charter has not brought the millennium—in the sense of perfect government—to a thousand municipalities; but in the great majority of them it has brought improvements so worth while as to make unthinkable any return to previous conditions of waste and inefficiency. The continued spread of the movement seems, therefore, to be assured; and we hope that Mr. Childs' prediction will be realized.

New Jersey League Urges State School Financing To Relieve Real Estate

A PROPOSAL that the State of New Jersey (1) assume all or a substantial portion of the total cost of public education, and (2) that this cost be financed through corporate or individual income or consumer sales taxes, or a combination of such bases, was approved by a sharply divided vote at the annual meeting of the New Jersey State League of Municipalities, in Atlantic City, on December 1.

The resolution also recommended (3) that "the State delegate optional taxing powers to large cities compelled by their location and metropolitan character to provide services and facilities greatly in excess of the needs of their own taxpayers; such taxes to be in the form most suitable to the particular city and to come from sources not otherwise assessed."

As assurance that the tax relief granted under this program be reflected in local tax bills, the resolution urged (4) "the State to impose and the municipalities to

The American City Quiz

Match Wits with the Experts

QUESTIONS

1. ***When protecting water supply structures, does the pH of the rust tubercle have an effect on corrosion?***
2. ***Which is preferred for swimming-pool sanitation: a free available chlorine residual or a residual combined with ammonia?***
3. ***Is there an easy way to adjust manholes when a street is resurfaced?***
4. ***What is the value of sewage sludge, commercially?***
5. ***What was the biggest day's work recorded on a municipal street-improvement project?***
6. ***Is it safe to put important improvements such as an express highway over a city dump?***
7. ***In general, how does the cost of services that an average property receives from its municipal government balance against the amount of taxes it pays?***
8. ***Can a sanitary fill be operated in a marsh area?***
9. ***What is the deepest well used for public water supplies?***
10. ***Are there any prestressed concrete bridges in the United States?***

(Answers on page 9)

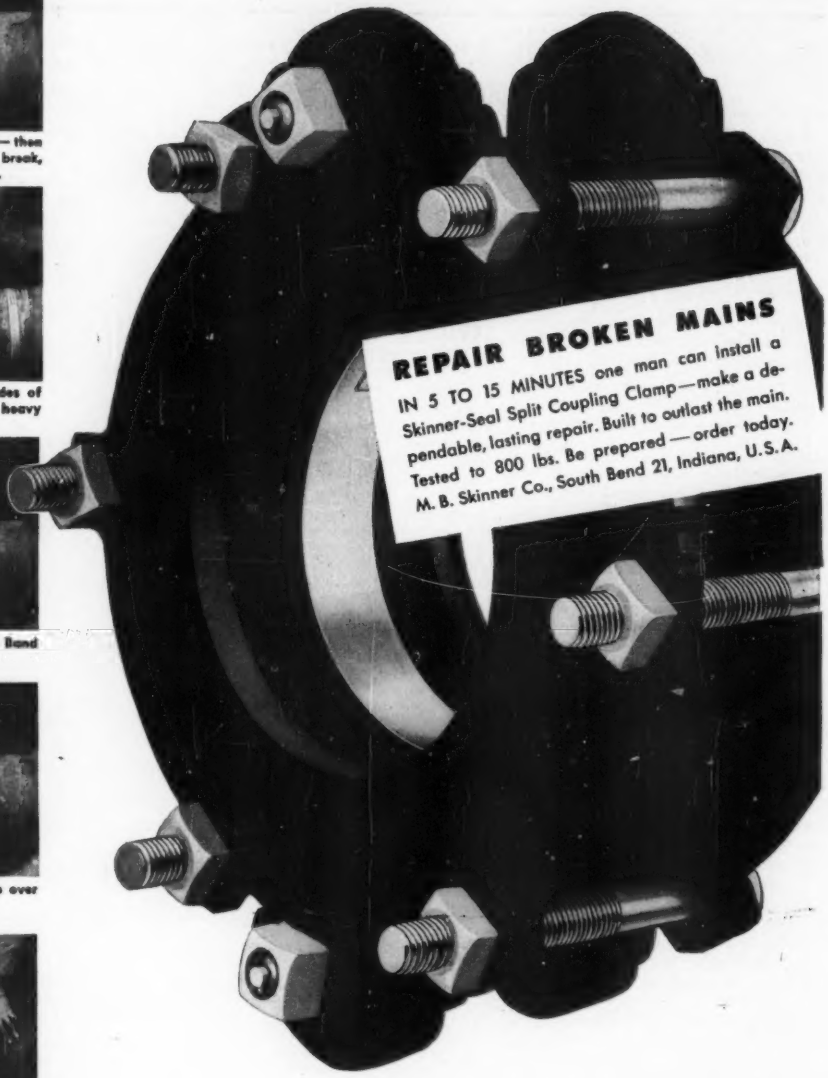
Clean pipe thoroughly — then center brass band over break, bending tab back to lock.

Thoroughly soap both sides of gasket and pipe with heavy soap water.

Center gasket and Monel Band over brass band.

Assemble halves of clamp over pipe and bolt together.

Insert pull bolts and tighten all around evenly.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accept, a reasonable but effective local method of application mutually determined to be the most suitable to secure the objective of lower property taxes."

No formula was proposed as to how any binding agreement could be made among the municipalities of New Jersey to implement this fourth point. John F. O'Brien, tax assessor of the Village of South Orange, sponsor of the resolution, expressed the opinion that "designing the best method is a work for impartial specialists and in my judgment we have such specialists in the Tax Policy Commission. I am confident that Dr. John F. Sly and his able staff are competent to devise a method which will be both effective and practical."

In adopting the four-point proposal, the League resolved further "that a special committee be appointed to make a further study of the administration of the present property tax system and be prepared, if requested, to assist the Legislature in its consideration of the above program and the general tax problem confronting the State."

More Meetings Needed On Urban Development And National Security

IT IS more than a great piece of good fortune for city planners that policies which best serve the nation's security are also best for urban development—it is a fact that has profound significance for the welfare of our country. City planners have been supporting for years well-considered dispersion of population and industry, providing needed permanent open space, organizing better relationships of homes and places of work to reduce wasteful, nonproductive commuter travel. We claim this is good for our people and economical for our industry and business.

We need a national meeting, regional meetings of groups of state, and meetings in the critical target cities, for full-dress discussion of the urgent and inseparably related problems of national security and urban development. The United States Chamber of Commerce and its local chambers might well take the lead in this, joining with the professional societies of planners, architects, engineers and the construction industry, making their leadership available to meetings having as their specific purpose discussion with the key administrative and technical personnel of federal and state agencies, on national security and urban development. Those who have the facts should be present at these meetings and be ready to give them out, so that the rest of us who are concerned with our own relation to these policies will be better equipped to formulate the programs for which we have responsibility. In this way it will be possible to move toward a clear, well-defined policy on what kinds of cities are needed to serve the purposes of peace and war, and obtaining agreement on it so that it may be used as a guide by the whole country—nationally, in the states, and in the cities.

PAUL OPPERMANN
Director of Planning
City and County of San Francisco

From address at Businessmen's Conference on Urban Problems, November 20.

Public Housing—An Important Local Issue

THE local hurdles to the building of public housing projects authorized by the Housing Act of 1949 are proving a good deal higher than municipal officials of some cities had anticipated.

The figures reported by the Public Housing Administration show that as of December 15 preliminary loans to provide for the surveys and planning work of public housing projects had been approved in the amount of $53,479,000 to cover planning of 283,384 units by local housing authorities in 584 localities. But the number of cities which have actually started construction on low-rent projects under the 1949 Act is considerably smaller, and even if there had been no presidential limitation, probably less than 30,000 dwelling units could have been placed under construction by the end of 1950.

The delays have been compounded of many factors. At the meeting of the American Municipal Association last month, Mayor Joseph Darst of St. Louis described one of the reasons for delay in these words:

> In some cities the well-heeled sabotage program of certain private real-estate interests broke out into the open in the form of referenda. Unsuccessful at the national level, these forces adopted a new tactic. Popping up, now here, now there, they circulated petitions and, with a campaign based on half-truths and worse, frightened a sufficient number of citizens into voting against local participation in the public-housing program. We must not be complacent—your city or my city may be the next on the schedule of this wrecking crew. . . .

Significantly, St. Louis is one of the few cities which has actually started construction on its public housing. Mayor Darst's whole-hearted support of the program is undoubtedly an important reason why this is so.

Administrative problems involving federal-local relations, site-selection difficulties, and high costs have been and still are, in some cases, impeding the program in other cities.*

Must We Create New Slums?

But whether the drastic and stringent new regulations for cost-reduction in local public housing projects, announced by the Federal Public Housing Administration late last year, will improve the situation is another matter.

Moreover, there is the much more serious question whether the public housing projects built under the new restrictions will serve some of the basic purposes for which public housing was first conceived. In general, the new regulations reduce room-space standards, raise site densities, and discourage heavy-type construction and units for very large families. In effect, they may well tend to create new slums, though somewhat cleaner and better kept at first than those they replace.

The problem is one of providing adequate space for family living. The National Association of Housing Officials has contrasted the new maximum space standards of the Public Housing Administration with the space standards recommended by the American Public Health Association. The PHA maximum space standards are roughly half those recommended by the public-health group.

In commenting on this situation, the National Association of Housing Officials declares:

> The houses we build today will, if this nation endures, be occupied by our children and our grandchildren; therefore they must have adequate space for children. A house with space for children may cost more to build than does a single-room efficiency apartment; it may require more land per dwelling unit than does a six- or eight-story multiple structure, but unless we build for families with children, there is little purpose in our building. . . .

Whether efforts will be made to curtail the entire public-housing program authorized under the Housing Act of 1949 in the period ahead remains to be seen. In the meantime, however, local officials have several responsibilities. One of these is to counteract the questionable statements often hurled by public-housing opponents in local campaigns, certainly to the extent of making the truth known. It should be remembered that an extremely broad array of national-interest organizations supported and still support public-housing objectives.

The other responsibility of local officials is to make it clear to federal officials in charge of the housing program that public housing projects inadequate in terms of space standards with poor construction, and with few units for large families will be unacceptable.

As has been said by others, the cost of a house is its total cost during the whole period of its existence, and construction economy is measured in more than dollars. Local officials and municipalities will have to "live with" for many years the permanent housing projects which are now constructed. Already low standards should certainly not be lowered further at this time—as a matter of both local and national interest.

* For a fuller report, see "Housing: a 1950 Tragedy," by Lee F. Johnson, December 1950 issue of *The Survey*, published at 112 East 19th St., New York 3, N. Y.

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Growing Trend Towards Joint State Conferences Of Municipal Officials

THE AMERICAN CITY commends the increasing custom among state leagues of municipalities of inviting other municipal organizations in the state to affiliate with the league in its annual meeting.

A recent example was the annual conference of the New Jersey State League of Municipalities, held in Atlantic City from November 29 to December 1, at which the following organizations held joint meetings:

Association of Municipal Assessors of New Jersey
Building Officials Association of New Jersey
Municipal Clerks' Association of New Jersey
Municipal Electrical Inspectors' Association of New Jersey
New Jersey Association of Municipal Engineers
Municipal Finance Officers' Association of New Jersey
New Jersey Association of Municipal Attorneys
New Jersey Health Officers Association
New Jersey Association of Housing Authorities
New Jersey Federation of Official Planning Boards
Municipal Receivers and Tax Collectors Association of New Jersey
Public Recreation Association of New Jersey
Municipal Welfare Association of New Jersey
Municipal Officials Association fo South Jersey

Among other joint conferences of this kind might be mentioned the plans already made for the annual convention of the League of Texas Municipalities, to be held in Mineral Wells, October 21 to 24, 1951, with which eight other organizations are affiliating. These are:

Texas City Managers' Association
Municipal Utilities League Section
Texas City Attorneys' Association
Texas Chapter, Municipal Finance Officer's Association
Texas Association of Assessing Officers
Texas Public Works Association
Association of City Personnel and Civil Service Officials of Texas
City Planners' Association of Texas

New Reports on Planning Commission Budgets and Functions

BUDGETS and Salaries of Selected Community Planning Agencies and *The Planning Commission—Its Composition and Function* are two recent information reports published by the Planning Advisory Service of the American Society of Planning Officials.* Current data are given on size of planning budgets, types, and amounts of funds—in addition to regular appropriations, salaries, size of staff, and its distribution by salary range, and the per capita expenditures for planning in various cities. The second report tells who planning commissioners are, how they were selected, and what they do to help in the work of the planning agency. The reports are based on the findings of a survey of planning agencies throughout the country which was made last June.

* Reports are available only through subscription; for information write to the American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.

"We Got No Place To Go"

A CERTAIN juvenile delinquent, Joe, product of New York's teeming tenements and slums, is the subject of a story in the December 4 issue of *Time*.

In a quiet Brooklyn courtroom last week [says the story], Joe tried to tell why he and his buddies talked tough, acted tough and got tough inside. Judge Samuel Leibowitz had asked Joe, leader of a South Brooklyn gang, if he had anything to say before sentence was passed on a buddy, 17, who had shot and killed a member of a rival gang.

Joe stood up, chewing a wad of gum nervously, but he looked directly at Judge Leibowitz. He talked out of the side of his mouth, and his words came hard and fast. "Look, judge," he said, "sending him to jail isn't going to correct conditions. . . . What do you want us to do? It wasn't his fault. Not any more than it was ours. It was an accident." Joe paused, and there was a note of bitterness in his voice. "And you're not going to reform him by sending him to jail for a long time, judge." "No, judge," Joe said, "you're just going to make him bitter. Just as bitter as I was. I was in jail. I know what they did to me there." . . .

Joe paused. The courtroom was quiet. After a while, he went on: "Look, Your Honor, it's not us kids. It's the neighborhood. We ain't got no place to go. Do you want us to stay home seven nights a week? Look, we go into a poolroom or something, and the cops break in on us. We got no place to go!" . . .

Is your city giving this problem of wholesome outlets for the energies of youth the attention it deserves?

The American City Quiz

(ANSWERS TO QUESTIONS ON PAGE 5)

1. According to L. P. Sudrabin of Electro Rust Proofing Corp., Belleville, N. J., the activity of the rust tubercles seems inversely proportional to their pH. Active tubercles have a pH of 6.5. Cathodic protection raises the pH to above 7.0.

2. According to Eric W. Mood, Director, Bureau of Environmental Sanitation, Connecticut State Health Department, a free residual is 30 times more effective than a combined residual. A residual of 0.4 to 0.6 ppm is enough if most is of the free type.

3. Kansas City, Mo., has been experimenting with a manhole adapter that raises the rim so that a wearing surface can be added without raising the manhole frame. The adapter, a product of A. Reed Wilson Co., Kansas City, raises the top 2½ inches. The original cover fits inside the adapter ring.

4. W. W. Mathewes, Superintendent of the Gary, Ind., sewage-treatment plant, places the value at $5 and $10 dry, based on nitrogen content only, discounting the humus content.

5. Probably the biggest day's work on record occurred on Sunday, October 16, 1949, when Baltimore resurfaced 14 blocks in a downtown area covering 25,000 square yards. The work started at 5:30 a.m. ended at 9:30 p.m. and required the services of 83 trucks, 9 Barber-Greene spreaders, two rollers, and 236 laborers excluding the supervisors, equipment operators, and truck drivers.

6. In general, it is not a good policy. However, at Binghamton, N. Y., the New York State Department of Public Works felt that a city dump could be made into a suitable foundation. The fill varied from 5 to 20 feet, and was built in an old meandering creek-bed underlaid with organic silt and clay. The area was compacted with a 50-ton Bros roller. The average settlement was 1½ feet. At some points the settlement was 4 feet.

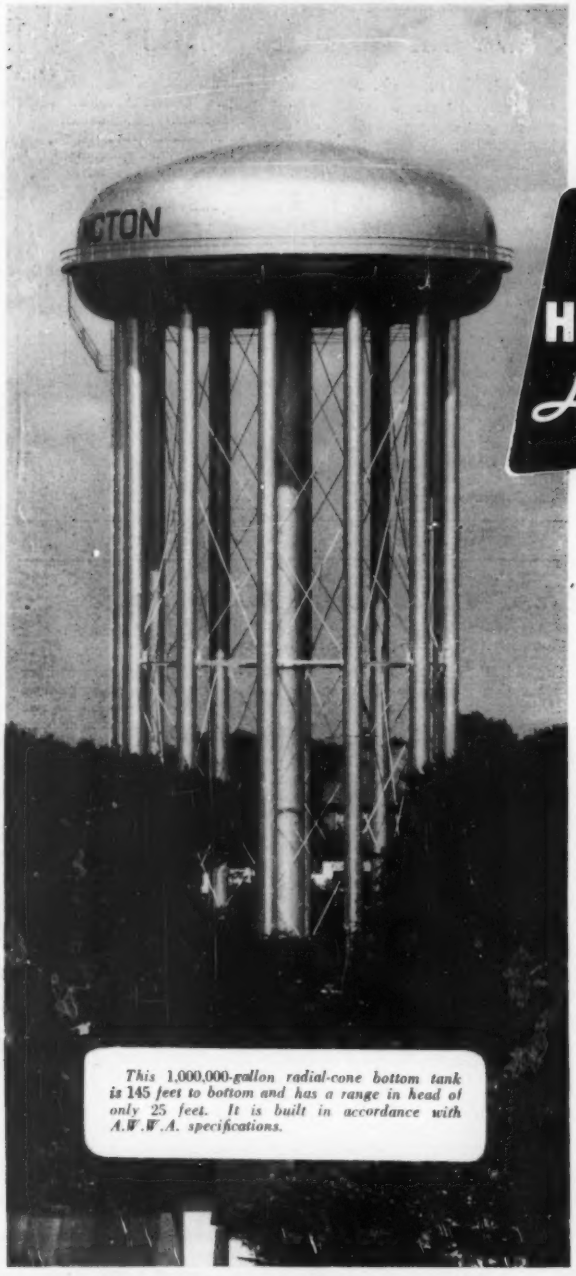
7. In a study of Evanston, Ill., Homer Hoyt Associates, consulting economists, Larchmont, N. Y., discovered that the average home was assessed for $8,680 in 1948, paid $275.62 in taxes and water bills, yet cost the local government $307.57 in services. The deficit was made up by businesses who pay school taxes, but cause no school expense.

8. It can. However, the work is difficult. New Orleans operates such a fill, places the trash in 100-by-100-foot cells formed by making dikes with natural clay walls. Cover material is trucked into the site.

9. The record probably goes to Eden, Texas, whose well goes 4,210 feet to the Hickory sands. The water, incidentally, is hot, reaching the user at a temperature of 90° F.

10. Philadelphia is in the process of building the first, and is building it only because the Art Jury of that city refused to accept steel, and stone-faced concrete was the only alternative. The prestressed design, developed by Preload, Inc., of New York, saved 60% in concrete and 80% in steel over the conventional concrete bridge. However, the steel used in the prestressed design was 2½ times as costly.

Send in your suggested questions with the answers on municipal topics for use in this feature. THE AMERICAN CITY will make a small payment for each question accepted.



This 1,000,000-gallon radial-cone bottom tank is 145 feet to bottom and has a range in head of only 25 feet. It is built in accordance with A.W.W.A. specifications.

Another Horton Tank in *Hoosierland*

HERE is another shining addition to Indiana's growing family of Horton elevated water tanks. It's the new 1,000,000-gallon installation at Huntington. Rising above this city of 18,000 people, the tank signifies dependable water service for years to come.

As many cities have discovered, elevated storage results in three important advantages . . . increased water pressure . . . decreased pressure variations . . . and reduced pumping costs. Combine these important features with the modern appearance of Horton tanks, and it's understandable why so many cities in Indiana and throughout the country are installing them for municipal service.

The radial-cone bottom design of the Huntington installation was developed especially for use in building tanks of large capacity. It enables us to build tanks up to 3,000,000-gallon capacity with a range of 25, 30 or 35 ft. between the upper and lower water levels.

Horton elevated tanks are of welded construction. This means lower maintenance costs and longer life. Smooth surfaces are easier to paint thoroughly and the protective coating is more effective.

Horton tanks with radial-cone bottoms are built in standard capacities ranging from 500,000 to 3,000,000 gallons.

Write our nearest office for complete information. There is no obligation.

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Houston 2.....2101 National Standard Bldg.
Los Angeles 17.....1503 General Petroleum Bldg.
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Philadelphia 3.....1616—1700 Walnut Street Bldg.
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Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Fluoride Lowers Tooth Decay in Sheboygan, Wis.

TWICE as many children of kindergarten age in Sheboygan have undecayed teeth today as were free of dental troubles before the city started its fluoride program. Today 42.3% of the 4- and 5-year-olds are completely free of tooth decay, as compared with 20.4% in 1945, according to Dr. G. J. Hildebrand, Health Commissioner. He stated further that the average child now has 2.5 teeth decayed, missing, or filled, compared with 4.8 in 1945 when the program was started.

According to Dr. Hildebrand, evidence seems to indicate that the best effects are obtained if children drink fluoridated water from birth on and if their mothers have also drunk such water during the prenatal period. The kindergarten children who will be surveyed in 1952 will come under this classification, and it is expected that well over 50% of this group will show no decay in their teeth. The table below shows the improvement in deciduous teeth that has taken place from year to year since the use of sodium fluoride in our water supply was started.

NUMBER OF DECAYED, MISSING AND FILLED TEETH, PER CHILD

	Baby Teeth
Prefluoridation Survey ..	4.80
1946	4.32
1947	4.09
1948	3.46
1949	2.90
1950	2.58

The next table shows the percentage of children without any decay in their teeth.

	Baby Teeth
Prefluoridation Survey ..	20.40
1946	26.92
1947	29.17
1948	32.40
1949	37.30
1950	43.20

Dr. Hildebrand points out that the improvement in the permanent teeth will take longer to demonstrate, since the permanent teeth are not fully erupted until the child reaches the age of about 12 years. For his studies on the permanent teeth, he includes children of the 7th, 8th and 9th grades. This year's survey of the permanent teeth has not been completed, but there has been a decrease of 18% in the number of decayed, missing, and filled teeth from 1945 to 1949, he reports.

Mobile's Old Wood Pipe Uncovered

Mobile's 92-mile municipal street-paving program uncovered a wood water main with at least a century of history behind it. Employees of Palmer and Baker, Inc., consulting engineers of Mobile, Ala., are shown examining a section of the old hollow log water main unearthed during excavations on a street approach. Mobile city water-works officials declare that the pine-log main, joined with cast-iron couplings, dates back to 1840.

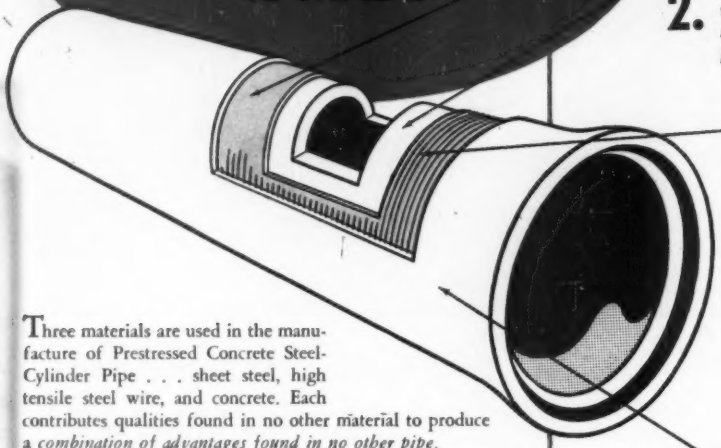
Alum vs. Iron Salts for Water Coagulation

IN GENERAL, alum seems to have a slight edge as a coagulant over iron salts, according to a study made by the Research Division, College of Engineering, New York University. However, to offset this, the iron salts produce a coagulant that settles faster. Alum appears to work better in waters of somewhat higher pH value. The studies were made for the Army Engineering Research and Development Laboratories, Fort Belvoir, Va.

Turbidity, the report indicates, is in general negatively charged colloidal matter. Alum's ability to remove it is a function of the positively charged alumina floc and trivalent aluminum ions in the solution to neutralize the net negative charge produced by the hydroxyl ions in the water and the negative charge on the colloid turbidity. Since the negative charge on the turbidity and in the solution are a function of the pH and alkalinity, they will be the limiting factors in the alum dosage. Since alum is somewhat more soluble than ferric sulphate, it is able to produce a greater net positive charge of ions to neutralize the negative charges.

The report discloses that alum alone gives optimum results over a narrow pH range of 6.75 to 7.05 with best results at about pH of 6.9. Ferric sulphate alone produced optimum floc over the pH range of 5.7 to 6.4 with a critical point about pH 6.6. If the two coagulants are blended together, good floc may be formed at any point between pH 4.6 and 7.1 by varying the alum-ferric sulphate dosage. In terms of alkalinities, alum will produce a good floc at methyl-orange alkalinities of 30 to 60 ppm; ferric sulphate works best at 2-35 ppm. The tests were conducted at coagulant dosages of 20 ppm.

HOW Prestressed Concrete Steel-Cylinder Pipe IS MADE



1. A STEEL CYLINDER . . . is formed and hydrostatically tested up to a tension in the steel of 25,000 psi. *(Steel cylinder provides high beam strength and water tightness.)*

2. A CONCRETE CORE . . . is formed inside the steel cylinder. This becomes a structural part of the pipe. *(Concrete lining provides initial and continued high rate of flow.)*

3. HIGH TENSILE STEEL WIRES . . . are wound around the steel cylinder and concrete core at constant tension. *(Steel wire prestresses steel cylinder and concrete core by compressing them. Compression is relieved as internal water pressure increases, thus permitting high operating pressures without tension in concrete.)*

4. A CEMENT MORTAR . . . encasement provides a permanent exterior jacket. *(Mortar has proven the most successful protection against corrosion and electrolytic action.)*

Three materials are used in the manufacture of Prestressed Concrete Steel-Cylinder Pipe . . . sheet steel, high tensile steel wire, and concrete. Each contributes qualities found in no other material to produce a *combination of advantages found in no other pipe.*

This combination produces water pressure pipe that will give the longest trouble-free service at the lowest cost. That's why Prestressed Concrete Steel-Cylinder Pipe was picked for one of America's *longest* high-pressure water supply lines—the Saginaw-Midland pipe line in Michigan, and for lines in Miami, Fla., Rochester, N. Y. and elsewhere. Prestressed Pipe is manufactured in sizes from 16" up for any pressure common to American water-works practice.

Our engineers know pipe line design and laying problems. Consult them. There will be no obligation.

Price Brothers Company
1766 EAST MONUMENT AVENUE, DAYTON 1, OHIO

Please send me booklets on Prestressed Pipe.

- ☐ Manufacturing and Prestressing
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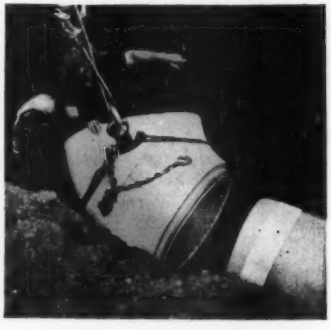
Send for these fact-packed booklets on Price Brothers Prestressed Concrete Steel-Cylinder Pipe.



Installing Price Brothers Prestressed Pipe on the 80-mile Saginaw-Midland project, one of America's longest high-pressure water supply pipe lines. Elbows go into line easily and quickly.

Street Construction & Maintenance

Milwaukee's Rubber Streets Ready for ARBA Examination

PHOTO COURTESY OF MILWAUKEE JOURNAL

Officials inspect one of the rubber-asphalt test sections.

FULL laboratory, construction, and performance data on three stretches of streets paved with a rubber-asphalt surfacing will be available to the American Road Builders' Association when it holds its annual meeting in that city next March. The members will be able to see for themselves the effect of heavy traffic on each of the three stretches. The Milwaukee Bureau of Street Construction and Repair will have available the results of periodic examinations as well as the details of the mix design.

The test sections are laid in 20- by 200-foot areas and are expected to give guidance to whether the pavement so laid is more elastic and thereby prevents surface brittleness. One section is using natural rubber, another, processed rubber, and the third, synthetic rubber. In the sections using natural and synthetic rubber, 18 pounds were used in each section. In the processed-rubber section, this was increased to 26 pounds. The plant temperature was 310° F.

The files of the Department of Public Works disclose that a rubber pavement was tried on a bridge in downtown Milwaukee in 1931. However, the pavement consisted of rubber blocks that worked loose from the suction of automobile tires.

The surfacing in the four sections used the following mixes, expressed in pounds, per batch:

A/c, 60-70 pen..	330	330	330	330
Mineral Filler..	720	720	720	720
Sand	2,950	2,932	2,924	2,932
Rubber, natural		18	....	....
" processed	....	....	26	....
" synthetic	....	....	....	18

Where a Stop Sign Proved Better Than a Traffic Signal

A MUCH higher accident frequency at the junction of highways U. S. 30 and Nebraska 15 than at similar locations was effectively corrected. The facts were reported to the Association of Casualty and Surety Companies by J. Edward Johnston, State Traffic Engineer of the Nebraska Department of Roads and Irrigation.

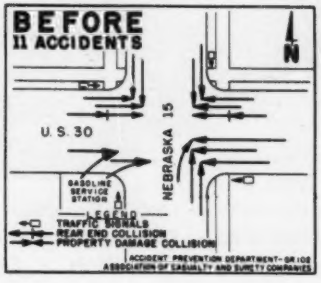
This location was primarily residential, although a gasoline service station was located on the southwest corner of the intersection. Sight distance on all approaches was adequate for safe operation. Single-face traffic signals located on the far right corners had been installed previously to control traffic.

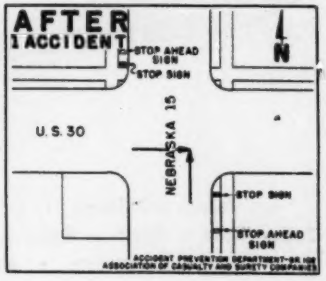
A total of 32 accidents were reported during an 8½-year period in which 13 persons were injured. Traffic counts at the intersection revealed a 24-hour traffic volume of 3,640 vehicles, of which approximately 2,500 operated on U. S. 30 and 1,140 on Nebraska 15. Although there was a 25-mile-per-hour speed limit posted, studies revealed that the average speed was 36 mph.

A speed and delay study, made to determine the amount of inefficiency of intersection operation due to unnecessary signal delay, showed that 53% of the vehicles entering the intersection were stopped for an average of 13.9 seconds each, of which 13.3 seconds was delay due to the signals alone. This meant that there were approximately six hours per day of unnecessary delay.

Forty-five per cent of the past accidents had been caused by right-angle collisions between vehicles on the intersecting streets—a type of accident which properly warranted and obeyed signals should normally prevent. The intersection was having eight times as many accidents as a similar location on U. S. 30, where stop-signs only were used to control traffic. In addition, the average vehicular delay due to stop-signs at the other location only ranged between 4 and 5 seconds.

Accordingly, the traffic signals were removed, and 48-inch reflectorized stop-signs and "Stop Ahead" signs were erected to control traffic on Nebraska 15. The speed limit was raised to 35 mph. During the 12-month period prior to the removal of the signals, there were 11 reported accidents. In a comparable period since then, only one very minor accident had occurred.





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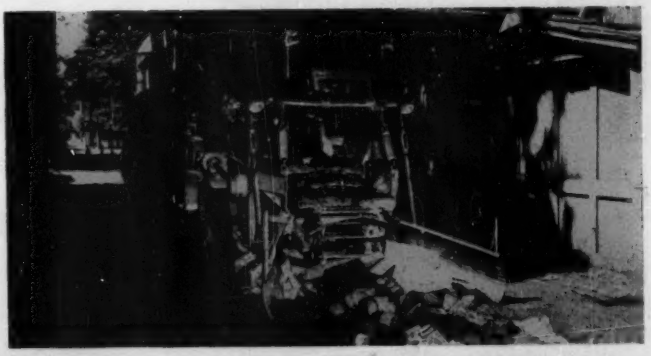
Street Cleaning and Snow Removal

All in a Day's Work

Top right: Snow, ice, leaves, or trash all respond to the persuasive action of an Athey mechanical loader. At Holyoke, Mass., the loader picks up trash in certain areas where it was dumped from containers that are too heavy to lift into the trucks.

Lower left: In the fall Ann Arbor, Mich., uses its loader to pick up leaves.

Lower right: Here is a unit owned by Grand Rapids, Mich.; it is picking up a windrow of snow with chunks of ice to make the work tougher.



Street Cleaning Bibliography

THE bibliography pertaining to the article "Elements of Good Street Cleaning," which begins on page 82, appears below.

(Articles that have appeared in THE AMERICAN CITY)

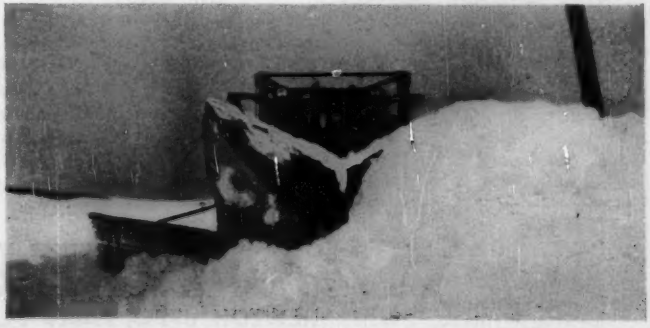
1. October 1942, pp. 62-64
2. October 1949, p. 116.
3. November 1947, pp. 118-19.
4. May 1942, p. 11.
5. July 1948, p. 15.
6. June 1950, pp. 104-5.
7. August 1941, p. 11
8. March 1948, p. 11.
9. July 1949 and correspondence.
10. May 1948, p. 15.
11. July 1942 and correspondence
12. February 1944, p. 63.
13. April 1948, pp. 115-16 and correspondence.
14. March 1948, p. 97.
15. September 1947, p. 111.

27 Inches of Snow In One Storm

THE City of Presque Isle, Maine, known in the Northeast either as the Metropolis of Aroostook or the Potato Empire, has substantial and regularly recurring snow-removal problems. Norman W. MacDonald, City Manager, reports that the largest single snowfall during the last 10 years occurred in 1946, when 27 inches fell in one night.

The city likes heavy-duty equipment to handle snows like these. It has three 7-ton Oshkosh trucks equipped with Ross V-plows and one wing plow. It also has two 10-ton diesel-powered Oshkosh trucks, one with a Frink V-plow, and the other with a Ross V-plow, both with widening wings. This is in addition to four 1½-to-3-ton Ford and Mack trucks that start plowing when 1 or 2 inches of snow have fallen.

Presque Isle has a population of 10,000, and 91 miles of streets to plow. In the rest of Aroostook County, there are 47 miles of highways kept clear by the State Highway Department. Snow removal in the entire area is important, since children from the rural areas are transported to schools in the city. Also potatoes are stored in heated potato houses which must be kept supplied with fuel. The county ships one-fifth of the potatoes grown in the United States.



Presque Isle's big 10-ton diesel-powered Oshkosh pushing through heavy snow.

IS THIS YOUR CITY?
FOR
FIRE
OPEN
THEN
PULL DOWN
HOOK
32
FIRE
TOO FEW - TOO LATE!
Nearly 400,000 fires and two-thirds of the life loss by fire occur annually in residences. Delayed alarms and tragic consequences are frequently caused by inadequate box distribution in residential districts.

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Public Safety

Philadelphia Police Try Wiring Photos and Fingerprints

A NEW and revolutionary technique of speedily transmitting fingerprints, identification photos, and other police intelligence throughout the country was demonstrated on August 21 before officials of the Philadelphia Police Department. The new device, called "speedphoto transceivers," is destined, in my opinion, to receive wide acceptance.

The speedphoto machine is a compact unit measuring 27 inches in its greatest dimension and is easily portable, weighing only 60 pounds with its carrying case. Each unit can receive as well as transmit intelligence of virtually any visual nature. Letters, documents, checks, signatures, or anything that can be placed on the drum of the machine can be transmitted swiftly and with fidelity in reproduction at the receiving end.

Here's how a typical transmission from city to city, state to state, or even continent to continent would work: the photograph, document, letter, etc., is wrapped around the drum of the speedphoto machine, and an ordinary telephone call is placed to the receiving station advising that the transmission is about to begin. With a flick of a switch, transmission begins. The drum starts revolving while a narrow beam of light scans the copy and a photoelectric cell sends electrical impulses across ordinary telephone lines to the receiving station, where an exact replica of the original copy is recorded photographically.

The entire transmission for, say, an 8-by-10-inch piece of copy takes only 10 minutes. These transceivers work over wireless as well as telephone lines. The machine is leased from International News Photos, 235 E. 45 St., New York 17.

SAMUEL H. ROSENBERG
Director of Public Safety
Philadelphia, Pa.

International News Photo's device to transmit photographs by electrical impulses is demonstrated at City Hall, Philadelphia. Left to right are Robert Essan of INS, Director of Public Safety Samuel H. Rosenberg, Inspector Richard Doyle, Superintendent of Police Howard F. Sutton, and Captain John J. Hanlan. A network of similar machines in other large cities will permit speedy transmission of fingerprints and pictures.

Model Fire Station Among Beloit's Residences

BELOIT'S Fire Station No. 3, like so many modern fire houses, was designed to conform to the residential area in which it is located. The brick and tile bungalow-type building cost $46,498.

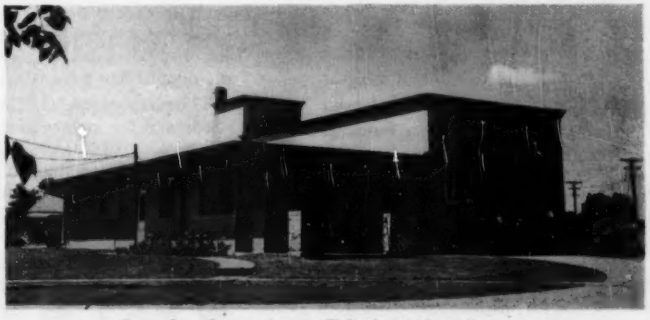
Off the porch is the green-walled squad room, furnished with eight wooden armchairs. Off this living room is an office, and then a hall with eight lockers. A kitchen, washroom, and sleeping room for four follow.

Inside the big door space in the photograph is, of course, the apparatus room, which is 17 by 38 feet, and 14 feet high. The apparatus is a 500-gallon General Motors Company (chassis) pumping engine standing on a Pompeian red concrete floor.

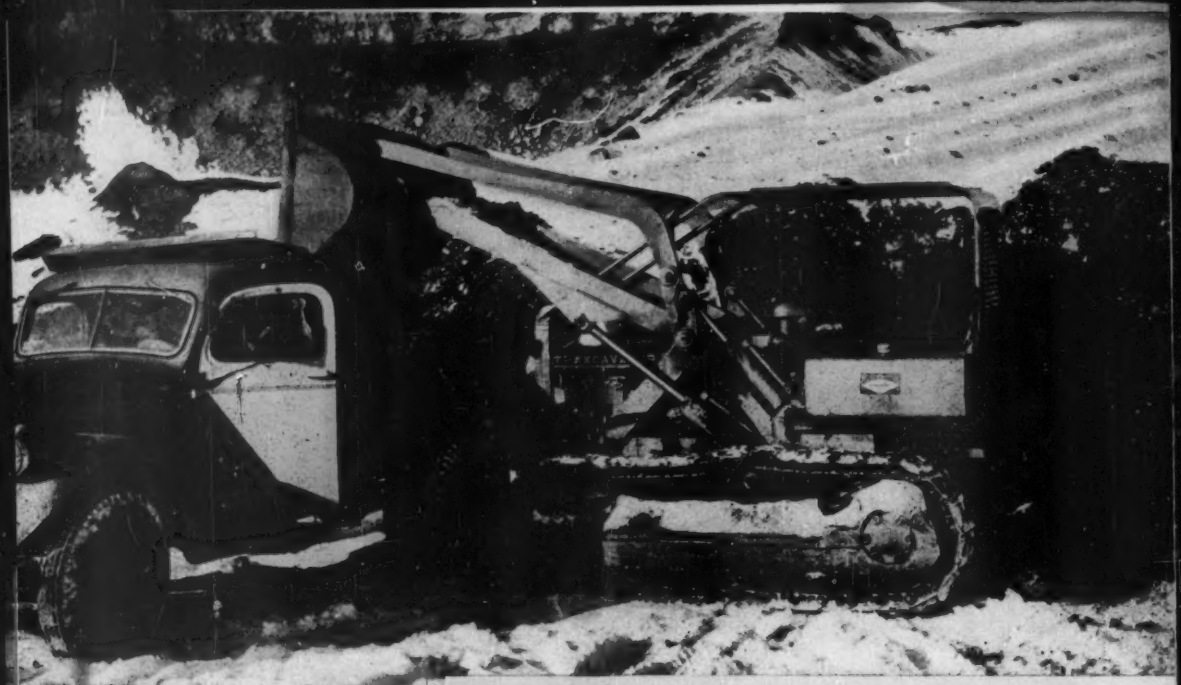
To the rear is the 28-foot hose-drying tower. We use only the best grade of fire hose and at the present time have hose from the Fabric Hose Company; also a quantity of Duraflex and No-Freeze hose manufactured by the Bi-Lateral Hose Company.

Drainage for the entire building is supplied by a sump pump. The architect was J. Mandor Matson of Racine, Wis. Glen Davis is Fire Chief.

A. D. TELFER
City Manager
Beloit, Wis.



Bungalow fire station in Beloit's residential area.



A "Caterpillar" D4 Tractor with T4 Traxcavator, owned by the city of Olympia, Wash., loads gravel to spread on snowy streets.

Loads 3 yards a minute to keep traffic moving

WINTER storms put a heavy responsibility on municipal officials. First, they must clear away as much snow as possible, as fast as possible. Then, if icing conditions follow, they must get sand or cinders on the streets in a hurry to guard against accidents.

In Olympia, Washington, a "Caterpillar" D4 Tractor with T4 Traxcavator does both jobs. After a snowfall the unit loads 6 to 8 six-yard trucks as fast as they can haul the snow away. Then it operates in the city gravel pit, handling up to 3 yards of material per minute for sanding slippery streets.

In a single emergency this equipment can more than pay for itself by saving lives and preventing traffic mishaps. And in regular everyday use it's an equally good investment. The main job of the Olympia unit is to feed the city's screening plant. There are mighty few days when it doesn't pay the taxpayers a profit.

The importance of "Caterpillar" equipment both for military needs and for maintaining the civilian economy is increased by the present situation. Talk over your machinery requirements with your "Caterpillar" dealer. He has a complete stock of parts to keep your present equipment in running order and will do his utmost to make prompt delivery of new machines.

CATERPILLAR, PEORIA, ILLINOIS

LOOK UNDER THE HIDE

Connecting rods for "Caterpillar" Diesels are made of medium carbon steel, drop forged and heat treated. Of "H" section design, they are rifle drilled to provide oil passage to the piston pin, and to oil-cool the piston. Connecting rods are balanced to close limits. Crankpin bearings are solid aluminum alloy, precision type. Piston pin bushings are bronze and are precision bored. Look under the hide for built-in quality.

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Sewerage and Sewage Treatment

Why and How to Keep Sewers Clean

SEWERS should be kept clean for five specific reasons, explained John Hood, Superintendent of Sewage Treatment, Ridgewood, N. J., at the recent American Public Works Association Congress. These reasons are as follows:

To prevent the sewers from developing public-health hazards

To avoid formation of noxious and lethal sewer gases

To protect the deterioration of substructures and pipelines from corrosive gases

To prevent reduction in carrying capacities of pipelines

To prevent the increase in the biochemical oxygen demand of the sewage, thus increasing treatment difficulties

Sewers can be kept clean, he explained further, by proper application of mechanical and chemical methods. Grit difficulties generally cause trouble in sewers laid on flat grades. These can be flushed clean by using equipment such as the "sewer ball" developed by the Sidu Corporation of Long Beach, Calif. This is a large, tough rubber ball inserted into the upstream portion of a sewer with a rope secured to it. This constricts the opening so that the velocity of the sewage flowing past it is increased enough to wash the grit to the next manhole, where it may be removed.

Other methods, Mr. Hood explained, such as the use of various types of mechanical equipment will take care of difficult obstructions that cause stoppages. (See page 77 for list.)

Fungi Obstruction

Tree roots and fungi are also common causes of obstruction, and are more difficult to deal with by mechanical means. Fungi are prolific in sewage-collection systems and are generally found associated with reducing-conditions that make the sewage more difficult to treat. They also obstruct the free flow in pipes and contribute to the generation of lethal and explosive by-product gases such as carbon dioxide, hydrogen sulphide, and methane.

In 1937, Ridgewood, N. J., adopted a copper-sulphate treatment to eliminate roots and fungi with excellent results. The practice has been to drop about a pound of copper sulphate into the toilet bowl at each residence, and into the invert of the sewers affected at various manholes about once a year. This has increased the capacity of force mains, decreased friction heads, and increased pump capacities.

An estimate of sewer conditions can be judged by the pH and methyl-orange alkalinities, or the oxidation-reduction potential of the sewage, Mr. Hood pointed out. For example, given a city water of 80-ppm methyl-orange alkalinity and a street-lateral sewage of 500-ppm alkalinity, it can be stated that this sewer is badly obstructed. Similarly, the oxidation-reduction potential can be used to survey and operate a system. This value denotes biological classification on the basis of various levels of electrical potential in the liquid at which entirely different organisms operate. If a high positive potential is maintained in a line, then regardless of the concentration of organic or mineral sulphates present, hydrogen sulphide will not be evolved, and disintegration of structures will not occur. Reinforced-concrete pipes should not be used for sewers where control of the oxidation-reduction potential is not effected, Mr. Hood warned.

Radioactive-Waste Limit for Sewage and Streams

A FIGURE of 10^{-4} microcurie per liter apparently is a safe limit for radioactive wastes that may exist in streams after radioactive products are discharged from hospitals and research laboratories into the sewer systems and streams. At this limit, the biochemical oxidation or organic material in streams is not affected. This was the finding of Werner Gruen, Research Associate, New York University, and Rolf Eliassen, Professor of Sanitary Engineering, Massachusetts Institute of Technology, Cambridge, Mass. Their findings were reported at the Federation of Sewage Works Associations' annual meeting, held recently in Washington, D. C. The results indicate that up to 10 millicuries of beta radiation will not have an adverse effect on the aerobic stabilization of the water in the stream.

Their studies further showed that ordinary tests can be carried out under radioactive conditions when proper precautions are observed and safe limits of radioactivity, as established by health physicists, are observed.

Feeding Liquid Sludge

In this Washington orchard, sludge as well as other elements are injected into the soil under pressure.

FEEDING liquid sludge in vineyards and orchards apparently is not too reliable a business in the State of Washington. N. E. Waggoner, Senior Public Health Engineer, reports that the one firm practicing it to any great extent is the Washington Organic Fertilizer, Inc. This firm states that it requires expensive equipment that can be worked only part of the year. It also requires hauling a material that is 95% water.

This firm feels that more can be expected of the practice of putting up a well-processed dry material that can be used for most types of soil improvement. The company does this by selling 50-pound paper bags of sludge, with additions, under the name "Morganic."

Working Day and Night to Serve You

Here at Ryerson we're making an all-out effort to ease your steel-buying problems as much as possible.

No, we can't deliver all the steels you may need. Critical shortages growing out of the international situation prevent that. But what we can do—what we *are* doing is working shoulder-to-shoulder to see that you get every *available* item required as quickly as we can get it to you.

In spite of unbalanced stocks, we still have fairly good overall tonnage on hand. And the services of our experienced specialists may prove highly valuable in determining alternates, when the steels you need aren't readily available.

So for any kind of steel—any time—contact your nearby Ryerson plant. You can be sure we'll do our level best to take care of you.

PRINCIPAL PRODUCTS

CARBON STEEL BARS—Hot rolled and cold finished
STRUCTURALS—Channels, angles, beams, etc.
PLATES—Many types including Inland 4-Way Safety Plate
SHEETS—Hot and cold rolled, many types and coatings
TUBING—Seamless and welded, mechanical and boiler tubes
ALLOYS—Hot rolled, cold finished, heat treated
STAINLESS—Allegheny bars, plates, sheets, tubes, etc.
REINFORCING—Bars and accessories, spirals, wire mesh
BABBITT—Glyco bearing metal, also Ryertex plastic bearings
MACHINERY & TOOLS—For metal fabrication

RYERSON STEEL

Refuse Collection and Disposal

New Technique For Stump Removal

GOOD news for those concerned with the problem of stump clearance comes from the Park and Shade Tree Department of Maplewood Township, N. J., where a removal method has been developed that does away with all traces of stump without damage to surrounding turf.

The new technique, described by Department Director Richard Walter, consists of boring holes 2 to 3 inches apart and 6 to 8 inches deep into the stump remaining after a heavy-duty Disston two-man chain saw has felled the tree close to the ground. The holes, which can be drilled at the rate of three per minute, are made with a wood bit with an inverted cutting edge that overcomes the tough grain of the stump. After this "honeycombing," the stump is easily chopped out with a woodsman's axe. Grass seed is planted in the topsoil used to fill the hole, leaving no evidence that a tree ever existed on the site.

Holes drilled close together in a stump make it quick and easy to chop out.

Mr. Walter points out that the process is not only neat and simple, but a valuable time-saver. Stumps as much as 30 inches across have been cleared and filled in less than six hours.

How Much Refuse Per Stop?

IN HACKENSACK, N. J., collectors have been averaging 42½ pounds of refuse per stop, according to a survey by Louis DeLorenzo of the Department of Public Works. Of this, 28½ pounds, or 67%, has been garbage; and 14 pounds, or 33%, has been other rubbish. The trucks average 2½ tons per load and are Gar Wood Load Packers.

Hackensack has three refuse-collection routes. The number of "stops" on each ranges from 400 to 550.

City Dumps Branded Health Menace

ILLINOIS city dumps are harbors for disease-carriers which pose a constant threat to community health. This is the opinion of Dr. Roland R. Cross, director of the Illinois Department of Public Health.

Dumps are a public disgrace, he states. Besides being eyesores, they offer free food and lodging for the most flagrant violators of public health—flies, rats, and mosquitoes. Regardless of how diligently the householder attempts to control flies on his premises, he stands little chance of success when a near-by dump is a breeding ground.

Dr. Cross has found that only a dozen or so Illinois municipalities are following known methods of garbage disposal designed to stem the accumulation of breeding of flies, rats, and mosquitoes. He cites the sanitary-landfill method, in which garbage is deposited in trenches and covered with several inches of earth daily, and the incinerator method as types of garbage disposal which substantially eliminates the health hazards of the old-fashioned open dump.

The continued existence of the filthy dumping grounds is one of the remaining dark spots in the public-health picture in Illinois, Dr. Cross asserts.

Sanitary-Fill Land Reclamation

INSIDE the city limits of Charleston is a low-lying 6-acre plot owned by the Chesapeake & Ohio Railroad which borders its right-of-way. This undesirable property is gradually being improved, and the city's refuse is being disposed of by the sanitary-fill method. Gradually the plot will be built up to be level with the street at its front.

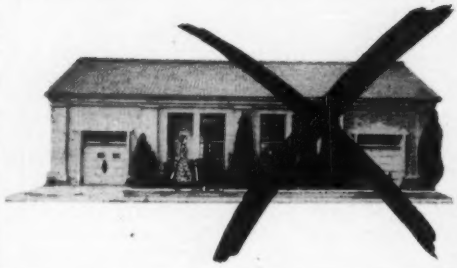
We are using an International TD-14A diesel crawler tractor which operates a 2-yard Drott Bullclam shovel. With this outfit, refuse and garbage is spread out in layers as it comes daily to the dump in numerous truckloads collected by the city's own special garbage-collecting vehicles. As the tractor travels back and forth in this bulldozing action, the garbage and refuse are thoroughly compacted. The tractor then can take dirt from a high place near the tracks and spread it over the refuse in layers.

Although inside the city limits, we are experiencing no bad odors or fire hazards, nor are we troubled with rats or other vermin.

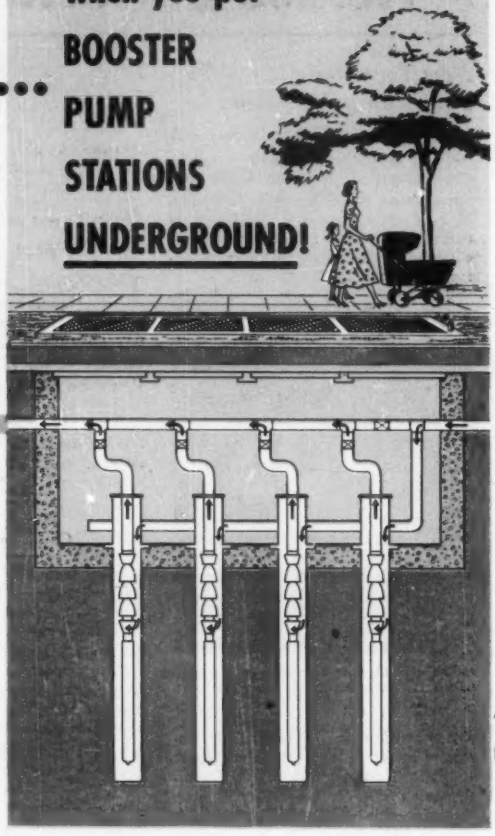
ARTHUR GATENS
Superintendent of Refuse Disposal
Charleston, W. Va.

Charleston, W. Va., begins to bring about the amazing transformation of waste land into productive property by employing the sanitary-fill method.

COSTS GO DOWN...



when you put BOOSTER PUMP STATIONS UNDERGROUND!



BJ SUBMERSIBLE PUMPS SAVE TAX PAYERS DOLLARS

Why tie up vital operating dollars in real estate, pump buildings, pump house maintenance and personnel when you can secure equal or better pumping performance *at much less cost* by putting your booster pump stations underground? Here's how Byron Jackson submersible pumps can save money:

YOU SAVE REAL ESTATE COSTS . . . there's no need to acquire special land. *Underground* booster stations can be placed beneath any city street or between street and sidewalk. They are out of sight and out of hearing.

YOU SAVE ON CONSTRUCTION . . . an *underground* pump vault can be completed at a fraction of the cost of a surface-type pump house.

YOU SAVE ON OPERATING COSTS . . . BJ submersibles do not require an attendant for oiling, packing inspection, or other daily care. There's no building maintenance either!

YOU'RE IN TUNE WITH THE TIMES . . . *underground* pump stations fit the trend toward concealed equipment and offer greater protection against fire, flood, sabotage and other disaster conditions.

Byron Jackson Co.

PUMP DIVISION
Since 1872
P.O. Box 2017, Terminal Annex, Los Angeles 54, Calif.
Offices In Principal Cities

The above sketch shows how four BJ 250 hp submersible pumps can operate in a 6' x 12' x 7' economically built underground vault between sidewalk and street or beneath the street surface. These pumps can be close-connected to the street water main with starter panel located in the vault or unobtrusively mounted on a nearby power pole.

The BJ submersible pump with special submersible motor answers many municipal water pumping problems. Find out how these pumps can cut your pumping costs. Send the coupon for general installation data or write for specific engineering assistance.

BJ Submersible Pump, Dept. 50
Send me full information on the BJ Submersible.

Name_____

Title_____

Address_____

City_____ State_____

Airports and Aviation

CAA Announces the 1951 Federal Aid Air Program

A LIST of 186 airport construction or development projects to be undertaken under the Federal Aid Airport Program during the fiscal year 1951 was announced by D. W. Nyrop, Administrator of Civil Aeronautics.

The program involves a total expenditure of $51,023,618, of which $24,838,910 is federal funds with local or state sponsors providing matching funds, totaling $26,184,708. The 186 projects announced by the Administrator include 73 for construction or improvement of Classes I, II, and III airports, representing $2,765,798 in federal funds; 113 for construction or development of Class IV, or larger, airports, totaling $22,073,112 in federal funds.

A further analysis of the total cost of the proposed program, both federal and sponsor, shows that 40 projects involve $6,006,882 for land acquisition, 67 projects involve $10,472,331 for building construction, 25 projects involve $1,383,795 on high-intensity light installations, and $33,160,610 goes to some 164 projects for construction on landing areas, such as runways, parking areas, and taxiways.

Big Airports to Be Community Centers

LARGE regional airports will become the geographic pivot around which community life in the United States will revolve. This is the prediction of Professor George Howe, Chairman of Yale University's Department of Architecture.

Present airport facilities, according to Professor Howe, are already proving inadequate, and new airports are being built in areas farther away from cities where land for expansion is readily available. At the same time, he added, plans have been made for large helicopter landing stages in the center of cities.

"These trains of thought," Professor Howe asserted, "would seem to me to lead logically and ultimately to the location of great regional airports in the country, serving several communities by shuttle helicopter buses delivering passengers, mail, and goods to the central-city landing stages. It is around such large regional airports that one might imagine new towns growing up."

At the present time, aviation has brought about the new concept of airport facilities—the hangar and air terminal building—but these are still in a state of evolution, he explained. He went on to say that, while the general idea of modern house-planning is "pretty well established," airport facilities will probably assume a new form within the next half century, just as metropolitan railroad stations and their surroundings did in the last fifty years.

CAA to Use Nautical Miles After 1952

THE Civil Aeronautics Administration will express speeds and distances in knots and nautical miles after July 1, 1952, according to D. W. Rentzel, Administrator of Civil Aeronautics.

Starting on that date, air-traffic controllers will use knots and nautical miles, instead of miles per hour and statute miles, in all communications with aircraft. This will be in accordance with the standards established by the International Civil Aviation Organization, of which the United States is a member. United States military forces adopted knots and nautical miles as standard for all aviation operations in 1946.

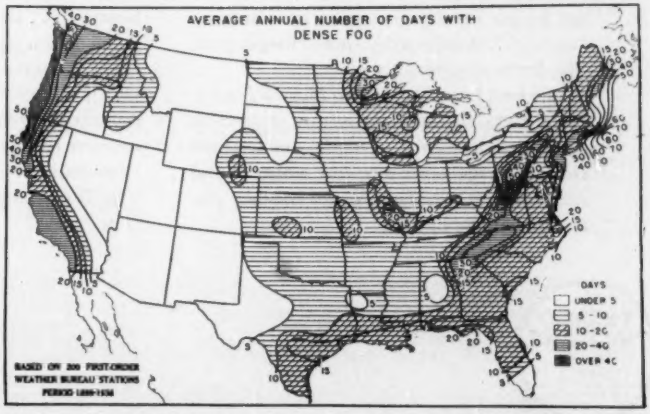
A nautical mile is 6,080 feet, compared with 5,280 feet for a statute mile. Thirty-eight statute miles equal 33 nautical miles. Basically, a nautical mile is one minute of arc on a great circle. This makes it much easier to solve navigation problems in terms of nautical miles than in statute miles. It also simplifies measuring distances on maps and charts.

Knots are the number of nautical miles traveled in an hour. A speed of 91 miles per hour, for example, would be the same as 79 knots. Air-speed indicators and other cockpit instruments can be converted to knots from miles per hour by substituting a new dial.

United States military and civil governmental agencies now are developing and installing an air-navigation system which can be used in common by all aircraft—private planes, commercial airliners, and military fighters and bombers. Standard units of measurement obviously are necessary to avoid confusion.

In selecting the date of July 1, 1952, for the change-over, it was felt that a period of nearly two years would be sufficient for pilot and aviation public education. During this interval, the aviation industry and the CAA will conduct an educational program for all persons connected with civil aviation, so that the change-over can be made with a minimum of difficulty.

Fog-Bound Conditions Across the Nation



An indication of fog-bound conditions in the United States that will influence airport operation. The drawing was prepared by the U. S. Weather Bureau.

MAINTENANCE COSTS GO DOWN

MORE THAN 350 MILLION POUNDS OF **MARFAK** HAVE BEEN SOLD!

...when TEXACO MARFAK goes in

Texaco Marfak stays in bearings in spite of the roughest service your bulldozers, shovels, trucks and other equipment may get. *Texaco Marfak* is both adhesive and cohesive, won't pound or squeeze out, resists washout. You get longer lasting protection against wear and rust... positive assurance of longer parts life, lower maintenance costs.

In wheel bearings, *Texaco Marfak Heavy Duty* gives similar long-lasting protection against wear and rust... requires no seasonal change. It seals out dirt and moisture and seals itself in—assuring longer bearing life, as well as safer braking.

For further savings, lubricate engines—heavy-duty gasoline or Diesel—with *Texaco Ursa Oil X***. This fully detergent-dispersive oil cleans as it lubricates... keeps rings free, assuring better compression and combustion... keeps fuel consumption and maintenance costs down.

Let a Texaco Lubrication Engineer work with you to simplify your lubrication procedures and reduce your costs. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

TUNE IN... TEXACO presents MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

Get What You Want—No Charge!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers, or circle the identifying numbers on this coupon and mail to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16, N. Y. We will see that catalogs are sent to you without expense or obligation.

12/50

900	901	902	903	904	905	906	907	908	909
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Name ..... **Position** .....

Address .....

What Machine Can Do More?

900 You will have to look long and hard to find a more handy piece of municipal equipment than the Le Roi Tractair. The prime unit is a powerful little rubber-tired tractor. Accessories on it make it possible to lift, load, backfill, drill, mud-jack, or power pneumatic equipment. Get a bulletin that tells all about it from the Le Roi Co., Milwaukee 14, Wis.

Fresh, Cool Air For Fire Fighters

901 Scott Air-Paks enable firemen to work safely and effectively by supplying them with fresh, cool air. Some of the features include: rubber face mask with laminated safety glass lens; emergency by-pass valve providing continuous flow of air to masks; hose fittings heavily plated for corrosive resistance, and all-purpose working breathing equipment. For a demonstration or further information, write to the Safety Equipment Division of the Scott Aviation Corp., 191 Erie St., Lancaster, N. Y.

Safety Manhole Covers

902 The E. H. Wachs Co. manufactures the Wachs safety counterbalanced manhole cover for valve, meter, transformer, and other underground vaults. It can be operated by one man, and features a positive, tamper-proof lock, unobstructed 30-inch square opening which gives ample room for installation and servicing heavy equipment. Complete details will be sent by the E. H. Wachs Co., 1525 N. Dayton St., Chicago 22, Ill.

For Better Community Recreation

903 General Electric's new Community-action "package" promotes better community recreation. Community leaders are invited to preview this new, forceful, thought-provoking program, which includes a dramatic documentary film produced for G-E by the *March of Time*, a 36-page manual for civic leaders, a 16-page booklet for industrial leaders, and audience questionnaire-type folders. Inspect this community-action "package" free, by writing to Section D, 451-153, Apparatus Dept., General Electric Co., Schenectady 5, N. Y.

Water Repellent Surfaces

904 You can get literature describing Hydrozo Water-Repellent Coatings useful on all types of building surfaces from Hydrozo Products, Inc., 3230 University Ave., Madison, Wis. Hydrozo Clear does not change the appearance of the surface. In addition, one can get Hydrozo White or Red Masonry paint or asphalt coatings.

Spreaders for Ice Control Or Street Surfacing

905 Whether you are spreading salt or abrasives for ice control, or aggregate for asphalt street surfacing, a Champion spreader will fit your needs. The spreaders are designed in a wide range of sizes. For complete information, write the Good Roads Machinery Corp., Minerva, Ohio.

Sewer Lines Clogged?

906 Southwestern Norcam suggests that you do not abandon them, but use its Sanitary Cleaning Unit which cleans sewer lines positively with new revolutionary sanitary method. The Norcam Cleaner has a 2,000-gallon tank which baffles out the debris and returns the clean effluent to the outfall line. No mess or refuse is ever placed on the street. For further information, write to Southwestern Norcam, 500 Santa Fe Bldg., 1118 Jackson St., Dallas 2, Texas.

Power Grader Cure For Ailing Streets

907 Austin-Western Co., Aurora, Ill., manufactures the A-W Power Grader to cure ailing streets. The All-Wheel Drive is efficient and provides ample power for heavy ditch cuts. It has loader and roller attachments and Controlled Traction." For literature, write Austin-Western.

Pipe Locator

908 Free literature will be sent by the Fisher Research Lab., Inc., 1951 University Ave., Palo Alto, Calif., describing its M-Scope pipe locator. Type AB-1950 model is priced at $149.50. This machine is operated by one man, and has a metal-cased cabinet.

New Construction Castings Catalog

909 The Neenah Foundry Co., Neenah, Wis., has recently published its new 140-page Catalog "R" covering construction castings. This includes nearly 15,000 items of castings used in highway, municipal, and general building projects. Castings manufactured and distributed by the Neenah Foundry Co. include many standards, such as manhole frames and covers, catch basin inlets and traps, adjusting rings, drainage gates, electrical and communication castings, curb and sidewalk guards, and many building items. In addition, Catalog "R" covers specials of all types used by architects, engineers, and contractors.

Pipe Clamps

910 The Smith-Blair Taper-Seal Rubber Gasket clamp has double sealing action because of wedging the gasket by both hydraulic live pressure and by moderate tightening of the strap nuts. It is designed especially for cement-asbestos pipe and light wall steel pipe, and it saves on installation time and financial expense. Full details will be supplied by Smith-Blair, Inc., 536 Railroad Ave., South San Francisco, Calif.

Snow Fence Stops Drifts

911 The Illinois Wire & Mfg. Co., P. O. Box 1396, Joliet, Ill., produces the Big Red snow fence which is constructed to prevent drifts all winter. The wire is specially galvanized by a new process which gives a heavy, ductile coating that will not crack or peel, and the pickets are treated with Red Mineral Preservative which effectively prevents decay by killing fungus and sealing pores. For descriptive literature, write the Illinois Wire & Mfg. Co.

Dependable Rollers Build Better Streets

912 Long life, dependability, and low-cost operation, and maintenance are claimed for the rollers produced by the Huber Mfg. Co., Marion, Ohio. The firm's equipment includes trench, retractable wheel, and compaction rollers. Their tandems are available in three to four tons, five to eight and eight to 12 tons, and their three wheels, from five to 12 tons. Full details will be sent on request.

Protects Steel Pipe

913 The Protective Coatings Div. of the Pittsburgh Coke and Chemical Co., 985 Grant Bldg., Pittsburgh 19, Pa., manufactures plasticized enamel which can be employed for use on both the interior and exterior of pipe. Write the firm for literature on this product which withstands extreme temperature variations of 20° F. to 160° F.

Bulletin on Snow Plows

914 A six-page bulletin, No. 890, covering the Baker line of snow plows for Allis-Chalmers tractors and motor graders, has been announced by The Baker Mfg. Co., 503 Stanford Ave., Springfield, Ill. Information includes construction details, application recommendations, and complete specifications. For a copy, contact Baker-Allis-Chalmers Dealers or Baker Mfg. Co.

(Please Turn to Page 27 for Further Lists of Catalogs)

A NATIONALLY RECOGNIZED FIRE SCHOOL DIRECTOR

"We believe in Scott Air-Pak. We use it and we teach its use. There's nothing like it."

PROMINENT FIRE DEPARTMENT SURGEON

"Scott Air-Pak is the best mask equipment available, because it completely protects the firemen's lungs, without any penalty of slow starting or difficult breathing."

A "CITY FATHER" SAYS

"I'm recommending more Scott Air-Paks, because we're determined to make our firemen safer and reduce our property losses. Our use of even a few Air-Paks has proved what can be accomplished."

Scott Air-Pak (TRADEMARK) invites you to

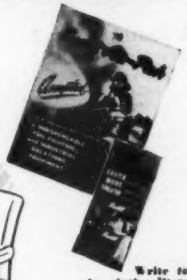
Meet Some People

A FIREMAN WITH 25 YEARS SERVICE

"I'm sold on Scott Air-Pak, (and I've used them all) because Scott has not forgotten the little things that count, like the guard on the Cylinder Valve; the wonderful quick-action Harness, and the easy and positive breathing action. All of our boys have complete confidence in the Air-Pak."

A FIRE CHIEF

"I'm standardizing on Scott Air-Pak, because their use is enabling my men to get in quicker; do more when they get in; and often knock out a fire with little water or structural damage. When we can equip *more* of our men with Scotts, we can do an even better job."



ESTABLISHED IN 1932 Scott FOR SAFETY - FOR SERVICE

A MUNICIPAL PURCHASING AGENT

"I have the operating cost record of our Scott Air-Paks. We saved money last year by using Scotts, in spite of the fact that we've used them *much oftener* than our previous breathing equipment. No Cannisters to buy. Air is relatively cheap. When the Chief asks for more Scotts, I'll sure approve."

Write *today* for descriptive literature on Scott *Air-Pak* (illustrated above) and Scott DEMAND Oxygen Inhalator.

SCOTT AVIATION CORP.

191 ERIE STREET, LANCASTER, N. Y.

Canada: Safety Supply Co. Branches in All Principal Cities
Export: Southern Oxygen Co., 157 Chambers St., New York 7, N. Y.

Which Catalogs Interest You?

Use the Coupon on Page 25

Cuts Ice-Removal Costs

915 The "Scotchman," a product of Tarrant Mfg. Co., East Ave., Saratoga Springs, N. Y., cuts ice and snow removal costs. Bagged or bulk salt can be used with this machine, which has a weather-proofed engine and electric starter. Contact Tarrant for literature or demonstration about the "Scotchman," for use on any truck.

Tractor Tools Used For Difficult Work

916 Hyster Co., manufacturer of 29 tools for Caterpillar track-type tractors, will send literature on its equipment. Among the tractor tools are the Hystaway, yarders and donkeys, logging arches and sulkies, towing winches, and grid roller. Hyster Co. is located at 2902-61 N. E. Clackamas, Portland 8, Ore.

Concrete Pavements

917 Concrete pavement is preferred by more cities every year, because it costs far less to maintain, renders longer years of uninterrupted service, and usually costs less to build than other pavements of equal load-carrying capacity. For more information about how to design and build durable, low-annual-cost pavements, write for your free copy of *"Concrete Pavement Design"*, published by the Portland Cement Assn., Dept. 10-4, 33 West Grand Ave., Chicago 10, Ill.

Simplified Packing Body For Refuse Trucks

918 The St. Paul Pax-all refuse loader has simple mechanism and one hydraulic cylinder to perform all operations. Other features include one pump and one valve which decreases need for servicing, and all mechanical parts of strong durable construction. This machine compresses loose combustibles into loads two and three times greater than obsolete, open non-packing units. For further information, write to St. Paul Hydraulic Hoist, 2207 University Ave., S.E., Minneapolis 14, Minn.

One-Man Chain Saw

919 The Disston Do-100 one-man chain saw is a lightweight 3½-hp machine which does the work of eight or ten men. Its cutting capacities range from 15 to 30 inches, its guide rails are interchangeable in the field, and it can be employed on large trees as well as small. For a free copy of the booklet which describes this implement, write Henry Disston & Sons, Inc., 1065 Tacony, Philadelphia 35, Pa.

Catalog on Pumps

920 Dewatering pumps, pressure pumps, electric pumps and well-point systems are all discussed in the new Jaeger catalog P-10. The booklet contains detailed technical information and much additional engineering data. Write to The Jaeger Machine Co., 505 Dublin Ave., Columbus 16, Ohio.

Street Signs, Plain or Reflecting

921 The Dominion Signal Co., 12 N. 15th St., Richmond, Va., manufactures street and highway signs suited to municipal, county, state, and federal standards. These signs are available in plain and reflecting styles.

Lightweight Steel Pipe

922 The strength of a spiral weld and the lightness of steel combine to answer piping problems in many specialized conditions. Sewage treatment plants use the pipe for disposal lines. Water filtration plants use it for filtration plant piping and for air pressure lines. Both water and sewage plants employ it in sludge lines and diesel plants use it for exhaust and intake pipe. This product can also be used for vacuum lines, ventilation pipe and other applications. Write to Naylor Pipe Co., 1230 E. 92nd St., Chicago 19, Ill., for literature.

New Expansible Controller Develops With Traffic

923 The General Electric Co. has issued a new expansible controller that grows with traffic. It simplifies your planning and buying, increases reliability, and cuts maintenance. Each dial unit has its own synchronous motor, timing gear, dial contacts, and timing keys. For information on this product which keeps your traffic-control system growing with traffic, write to General Electric Apparatus Dept., Schenectady 5, N. Y.

Fire Hydrants

924 The Rensselaer Hydrant drains fast without clogging and has working parts which are easily and quickly removed. The main valve is mechanically locked shut so that there is no danger of flooding if barrel is broken. Valve seats stay tight, won't leak or scar. For details on this fire hydrant, write to Rensselaer Valve Co., Div. of Neptune Meter Co., Troy, N. Y.

First Mechanical Joint Tapping Sleeve and Valve

925 The A. P. Smith Mfg. Co., East Orange, N. J., has manufactured the first mechanical joint tapping sleeve and valve which eliminates melting, pouring and caulking. Quick and simple installations can be made in wet trenches in all kinds of weather. The "Stuffing Box" type joints need no cutting or scarfing of rubber gaskets on the job. Contact the company for literature on this new product.

Road Tar for Any Season

926 Tarvia road tar, manufactured by The Barrett Division, Allied Chemical and Dye Corp., 40 Rector Street St., N. Y. 6, N. Y., can withstand the heat of summer or the cold of winter. Roads built with Tarvia will not wave, roll, push or bleed in the summer. Snow removal is facilitated because of its heat-absorbing surface. Write the company for details.

New Transformer Oil And Vinyl Base Paint

927 The Moloney Electric Co. recently introduced "Inhibitol" (a new inhibited transformer oil) and "Vinylex" (a new vinyl base paint) as standard on all distribution transformers at no extra cost. Inhibitol lasts more than four-and-one-half times longer than non-inhibited transformer oil, and Vinylex is a hard, weatherproof paint that resists scratching, scuffing, and chipping. For further information on these products, write to the Moloney Electric Co., 4546 Emerson Ave., St. Louis 20, Mo.

Bronze Tablets

928 United States Bronze Sign Co., Inc., 570 Broadway, Dept. AC, N. Y. 12, N. Y., on request, sends a catalog describing its tablets which are used for signs, statues, cornerstones, homes, hospitals, schools, and municipal buildings. Also available are free samples, sketches, and estimates.

Meters Solve Parking Problems

929 The Dual Parking Meter Co., of Canton 2, Ohio, solves your city's parking problems with its meters which have a continuous record of reliable performance, how maintenance, and substantial revenue to benefit motorists. Send for Bulletin DU-504 for on-street parking and Bulletin DU-505 for off-street parking.

For Leaking Reservoirs

930 Pressure Concrete Co. issues a 48-page "Gunite" bulletin which describes its product used to rapidly and economically repair leaking reservoirs. This high-quality sand-cement product solves the problem of disintegration. If you have concrete restoration problems of any kind, contact Pressure Concrete Co., 193 Emmett St., Newark 5, N. J.

House Numbers

931 Feeling the need for an adequate, legible system of house numbering, Premax Products has manufactured stamped and embossed aluminum and brass house numbers. These numbers, distinguishable at all times, are available in 3-inch or 4-inch sizes. For special pamphlet and complete details, write Premax Products, Div. of Chisholm-Ryder Co., Inc., 5146 Highland Ave., Niagara Falls, N. Y.

These Garbage Collectors Are Economical to Use

932 For economical cleanliness and sanitation, many municipalities employ hydraulically-operated Heil Colecto-Paks. Features of these trucks are a totally-enclosed steel body, "waist-high" loading height, and double capacity. They are available in 9 and 12-cubic yard capacities. Write The Heil Co., Dept. 43120, 3043 West Montana St., Milwaukee 1, Wis., for Bulletin BH47109.

Saran-Lined Pipe

933 When the handling of liquids is tough, Saran-lined pipe and fittings is your answer. Dow Chemical now makes the pipe to meet a temperature range of 40° F. to 194° F. Its mechanical strength has reached equality with that of metal pipe. Corrosion resistance has been enhanced and field fabricating using conventional tools has been accomplished. When writing for literature, address your request to Dow Chemical Co., Saran Fabrication Division, 2415 Burdette Ave., Ferndale 20, Mich.

New Psychoda Fly Control For Sewage Plants

934 A copy of the technical bulletin, *Chem-Larv for Psychoda Fly Control*, will be sent on request by the Chemical Insecticide Corp., 15 17th St., Dept. A-12, Brooklyn 15, N. Y. The firm's product is reported to suppress the numerical growth of psychoda flies beyond the ability of other agents which have been tried.

Playground Equipment

935 Playground equipment manufactured by the American Playground Device Co., Anderson, Ind., have certified malleable frame fittings which can never break; all frames and members are of new tested-hot-dip galvanized pipe, and are available in modern design and construction which are safe and durable For full details write to the firm, asking for No. 40 catalog.

For Public Property

936 Experts in metal fabrication since 1886, The Stewart Iron Works Co., Inc., 1721 Stewart Block, Cincinnati 1, Ohio, will send you catalogs on its various products, such as flagpoles, chain link wire fences, wire mesh partitions, iron picket fences, window guards, and ornamental iron lanterns.

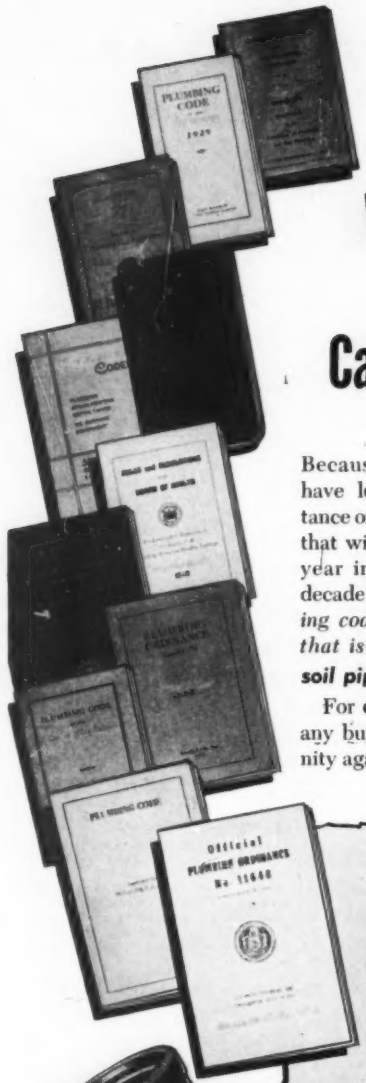
Aerial Ladder Truck Is Safe and Flexible

937 The Mack Mfg. Corp. will send details on its Mack Type 85, 75-foot aerial ladder truck which gives a smooth and fast performance. This safe and flexible truck features all-hydraulic controls and requires one-man operation. Its compact design is adaptable to modern traffic and existing quarters. Contact Mack Mfg. Corp., Fire Apparatus Div., 34th St. and 48th Ave., Long Island City 1, N. Y.

Uniform Fabrics

938 Standard uniform fabrics have been manufactured by Metcalf Bros. & Co. for over 80 years. The firm issues 12 to 18-ounce serges, tropical weight for shirtings; 18-ounce whipcord for breeches, and 20 to 30-ounce beavers. For full details, write Metcalf Bros. & Co., 45 E. 17th St., N. Y., N. Y.

(Please Turn to Page 29 for More Literature)



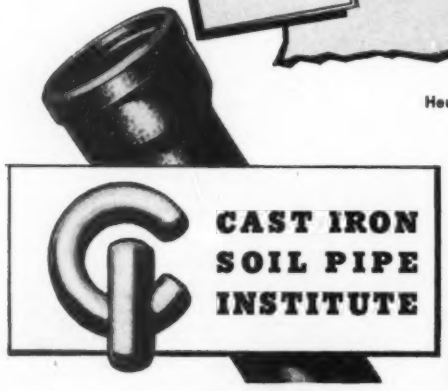
Why are ALL Plumbing Codes built around Cast Iron Soil Pipe and Fittings?

Because local health authorities have long recognized the importance of soil and waste disposal lines that will stand up under a beating year in, year out – decade after decade! *Can you pick up a plumbing code anywhere in the country that isn't built around* **cast iron soil pipe** *and fittings?*

For **cast iron soil pipe** outlasts any building, guards your community against dangers such as ground water pollution and escaping sewer gas. Moreover, you eliminate later street openings, trench excavations, backfill and repaving for a job that should have been done right in the first place.

You know your plumbing code is protecting your community's health – and dollars – when it gives preference to **cast iron soil pipe** and fittings. It's the only way you can be *sure*.

All lines of soil, waste and vent pipe and fittings installed in any building, or inside of any property line, or to a cesspool or septic tank, or to any public or private sewer, shall be of cast iron pipe and fittings.



CAST IRON SOIL PIPE INSTITUTE

CAST IRON SOIL PIPE INSTITUTE
Heurich Building, 1627 K. Street N.W., Washington, D. C.

This advertisement is sponsored by

Alabama Pipe Company
The American Brass & Iron Foundry
Anniston Foundry Company
Anniston Soil Pipe Company
Attalla Pipe & Foundry Company, Inc.
Buffalo Pipe & Foundry Corporation
The Central Foundry Company
Charlotte Pipe & Foundry Company
Combustion Engineering—Superheater, Inc.
Crown Pipe & Foundry, Inc.
The Eastern Foundry Company
East Penn Foundry Company
Emory Pipe & Foundry Company
Hajoca Corporation
Herco Foundry, Inc.
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Pacific Cast Iron Pipe & Fitting Company
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Reading Foundry Company
Rich Manufacturing Company of California
Rudisill Foundry Company
Sanitary Company of America
Somerville Iron Works
Tyler Pipe & Foundry Company
Walker Machine & Foundry Corporation
Western Foundry Company
Williamstown Foundry Corporation

Get This Literature—Free!

Use the Coupon on Page 25

Tubular Steel Poles

939 Slim tubular poles for street lighting and traffic signals, manufactured by the National Tube Co., have high strength and small diameters which create good traffic visibility and better safety. They have uniform wall strength without longitudinal welds. For information about these steel poles used for parks, boulevards and streets, write to the National Tube Co., Frick Bldg., Pittsburgh 19, Pa.

Zone-Marking Problems?

940 Kelly-Creswell Co., Xenia, Ohio, will solve your municipal zone-marking problems. Their product makes uniform cross-distribution and clean-cut, attractive lines. For information on highway line-marking equipment, contact Kelly-Creswell Co.

Fire Apparatus

941 Oren Roanoke Corp., Roanoke 16, Va., manufactures fire apparatus in four 1,000-gpm models. The concern also issues Model 1,600/1,000 pumpers. Write Oren Roanoke Corp. for further information.

Pole Climbing Eliminated

942 The Industrial Monkey is a hydraulically operated metal broom with a self-leveling cage on the end. It saves time, money and manpower, and eliminates pole climbing. Manufactured by Capital Industries, 1623 S.E. 6th Ave., Portland 2, Ore., the Industrial Monkey is easy to operate, lowers costs of street light maintenance, simplifies painting, installs lights for emergency night work, and can be used for a derrick. Write to Capital Industries for descriptive literature.

Heating Kettle for Repairs

943 The Connery Construction Co., 4000 N. 2nd St., Philadelphia 40, Pa., will send its Bulletin 87 describing its Style W heating kettle used for heating tar and asphalt for road, street, and airport runway repairs. This kettle is available in 75, 110, 165, and 210 gallons.

Meters Solve Parking Problems

944 The Dual Parking Meter Co. of Canton 2, Ohio, solves your city's parking problems with its meters which have a continuous record of reliable performance, low maintenance and substantial revenue to benefit motorists. Send for Bulletin DU-504 for on-street parking and Bulletin DU-505 for off-street parking.

Dependable Voting System

945 Does your community use modern, tamper-proof voting methods that voting machines provide? Contact the Automatic Voting Machine Corp., Jamestown 55, N. Y., for printed matter on its product which is serving in more than 5,000 cities and towns. The machine is insurance for an honest, dependable and accurate vote.

For Cleaning Walls

946 The Wallmaster, a product of the Quaker Maintenance Co., Inc., restores surfaces of walls and ceilings to their original lustre and preserves them for years before repainting. Handeasy, which is attached to the Wallmaster, cleans rough, uneven surfaces with controlled moisture features. A free demonstration will be provided if you write to Quaker Maintenance Co., Inc., 124 W. 18th St., New York 11, N. Y.

Fasten Street Signs Securely

947 Stainless steel strap and galvanized steel used for attaching street signs and highway markers are manufactured by the A. J. Gerrard & Co. For further information or a free demonstration, write to A. J. Gerrard & Co., 1952 Hawthorne Drive, Melrose Park, Ill.

Playground Equipment

948 The J. E. Burke Co., Sheridan Drive, Fond du Lac, Wis., on request, will send Catalog "K," describing its playground equipment. Among the products of this concern are heavy-duty swing sets, frame fittings, swing seats, slides, Climb-a-Round, Merry-Go-Round, see-saws, flagstaffs, and park benches. All-wood parts are furnished oiled and painted two coats with high-quality lead base paint. Fittings are certified malleable iron, heat-treated and hot galvanized, heavily ribbed and reinforced.

This Coating Stops Metal Corrosion

949 Powerfilm, a protective coating for metal surfaces, can be used for snow plows, farm machinery, tools, implements, and sporting goods, and auto chrome and undersides. It goes under and displaces water, thus providing the most effective protection. Powerfilm contains a corrosion inhibitor that guards against the effect of chloride ions present where salt or calcium chloride has been used. It is easily removed from any surface with a petroleum solvent or cleaning naphtha. Full details will be sent by The Thomas Co., 1645 Hennepin Ave., Minneapolis 3, Minn.

Need Service Equipment?

950 You can readily obtain customized or standardized public utility equipment from the Highway Trailer Co., Edgerton, Wis., and you can depend on Highway equipment for exceptional service, durability, and economy. Write for illustrated catalog; and send your requirements, for prices and full information.

Valve Box Locator

951 The Aqua valve-box locator will find hidden valve boxes, surveyor's stakes, manhole covers, and septic tanks quickly, easily, and cheaply. Its features include an instant top-view periscope—reading and a rubber-mounted cobalt-steel dipping needle. For use in ice and snow, it also serves as a compass. For illustrated literature, write the Aqua Survey and Instrument Co., 2518 Leslie Ave., Cincinnati 12, Ohio.

Drinking Fountain Pollution Proof

952 The Murdock Mfg. & Supply Co., Cincinnati 2, Ohio, is the manufacturer of an outdoor drinking fountain that is pollution-proof. It is pedal-operated and built to give long satisfactory service. Write the Murdock Co. for information.

Parking Meters

953 Four models of parking meters are offered by The Karpark Corp., and are adaptable, flexible, and economical. They include the "Superior," "Twin-O-Matic," "Unimatic," and the "Husky." Full details may be obtained by writing The Karpark Corp., Cincinnati 6, Ohio.

Safe Service Derricks

954 Built to give safe and dependable service for the longest time with the lowest cost, are Tel-E-Lect Derricks. "T" type derricks consist of one two-piece telescoping main member and one single-piece side brace member. "A" type derricks with middle leg has two one-piece side legs and one two-piece telescoping middle leg. The manufacturer, Tel-Elect Products, Inc., 10001 Minnetonka Blvd., Minneapolis 16, Minn., will send literature on its derricks as well as on its Model 400 Tel-E-Lect forward and reverse drive box designed to give single lever forward, neutral and reverse control to all winches powered by the truck transmission through an S.A.E. power take-off.

Submersible Pumps

955 Simplify and safeguard your lake or river intake water supply by using BJ Submersible pumps manufactured by the Byron Jackson Co. Available in capacities up to 20,000 gpm and heads to meet any intake need, these pumps need no elaborate structure, and no special grading of pump-to-shore pipeline. The line can also be smaller in diameter since the Submersible's pump-to-shore line is discharge and not suction. The Byron Jackson Co., P. O. Box 2017 Terminal Annex, Los Angeles 54, Calif., will send full information on request.

Spherical Water Tanks

956 The Cole Spherical Tank on Tubular Tower is of welded construction to provide gravity water pressure. It provides an attractive and serviceable unit, economical to maintain, efficient in service and pleasing in appearance. Installations of this character are made for municipal water works, domestic service, and fire protection. Steel-plate fabricators since 1854, R. D. Cole Mfg. Co., Newnan, Ga., will send its catalog on request.

"Gunite" Concrete

957 Specialists in cement gun work since 1915, Gunite Concrete and Construction Co., 1301 Woodswether Rd., Kansas City 6, Mo., manufactures "Gunite" for new and old reservoir linings, concrete and masonry repairs, and sewer lining and repairing. For information on "Gunite's" use, contact the company.

Water Meters

958 Badger Meter Mfg. Co., of Milwaukee 10, Wisc., reports that waterworks men in over 5,000 communities use Badger water meters for satisfaction in operation and maintenance cost. The company issues for waterworks superintendents the New Badger Chart No. 689 (Practical Plan for Meter Storage Rack), for which there is no charge.

Long-Life Traffic Signs

959 If your community is in need of street and traffic signs which give long life, contact the Cataphote Corp., Toledo 10, Ohio, for the catalog which describes its products.

Couplings for Steel Pipe

960 Installation costs, leakage losses and maintenance costs are decreased when using a Dresser-Coupled steel line. Only a wrench is needed to install Dressers, which will take deflection up to 5% at each joint. For literature, write Dresser Mfg. Div., 59 Fisher Ave., Bradford, Pa.

Aerial Surveys

961 *Aerial Surveys and Maps from Photographs*, a guide to air-mapping, is sent free of charge by the Abrams Aerial Survey Corp., Lansing 1, Mich. This firm's air-mapping crews saves you time and lowers your surveying cost. Its photogrammetry includes contour and planemetric maps, plan and profile and atlas sheets, and other maps to fit specific needs of municipal and commercial projects.

Asphalt Patching

962 The Standard Steel Works, North Kansas City, Mo., has issued a new catalog "S-J" describing its standard steel "S-J" Maintenance Distributor used for patching, prime coat, sealing, shoulder repair, and crack filling. This machine can be used for emergency or secondary construction work, and also performs many duties of heavier machines. For information, write to Standard Steel Works.

(Please Turn to Page 30 for More Literature)

YOU NAME THE PIPE SIZE... UP TO 12"

TOLEDO

will thread it at

LOWER COST!

Pick a winner every time—insist on genuine TOLEDO Pipe Tools for the job! These are the tools preferred for nearly half a century by better mechanics... and used so widely today to thread, cut and ream pipe at *top-speed*... with *less effort*... and *lower cost.*

Your choice—a complete range of 29 quality-built TOLEDO tools for all pipe sizes, ⅛" to 12", and ¼" to 1" bolts... also high-production power pipe machines, up to 2" and 4" capacity ... and portable power drives. Get time-proven TOLEDO advantages for every pipe fitting requirement! Write for catalog. The Toledo Pipe Threading Machine Co., Toledo, Ohio. New York Office: 165 Broadway, Room 1310.

RELY ON THE LEADER TOLEDO

POWER DRIVES...PIPE TOOLS...POWER PIPE MACHINES

Catalogs for You

Use the Coupon on Page 25

Stop Water Corrosion

963 Calgon is the answer to many of your water problems, according to Calgon, Inc., Hagan Bldg., Pittsburgh, Pa., and confirmed by water-plant superintendents the nation over. It controls corrosion in an aggressive water and stops lime scale in water with high bicarbonate contents or waters that have been softened by the lime-soda process. It also stabilizes dissolved iron and manganese and can be used to restore the capacity of wells. Write to the company to get copies of literature describing reach of these applications.

Snow-Clearance Machine

964 The Snow Master Junior, manufactured by Sicard Industries, 753 W. Main St., Watertown, N. Y., provides efficient and economical snow clearance. It has a maneuverable 100-inch wheelbase, sturdy four-wheel-drive for positive traction in snow and slush, and twin augers with equalizer bar. Complete information will be sent by the Sicard Industries.

Removes Iron and Manganese

965 Permutit's equipment eliminates the water nuisances of iron and manganese in any of three ways: by base exchange; by aeration, settling and filtration, or by oxidation through manganese zeolites. Full information may be obtained from The Permutit Co., Dept. AC-12, 330 W. 42nd St., New York 18, N. Y., or from Permutit Co. of Canada, Ltd., 6975 Jeanne Mance St., Montreal.

Portable Crane

966 The Memco portable crane, weighing 1,400 pounds, has an extended reach from 44 to 46 feet. It revolves 360 degrees right or left and is compact enough to mount on a ¾-ton pick-up truck. The machine, which is flexible, durable, and speedy, can be employed for erecting signs, line transformers, light steel sections, and building stone. Full details will be sent by the De-Lux Neon Mfg. Co., 1007 N.W. 36th St., Oklahoma City 3, Okla.

Sanitary Fill Builder

967 Ugly pits and gullies are transformed into pleasant and useful sites for roadways, parking areas, and playgrounds when you employ the Drott-International sanitary-fill builder. Garbage and refuse are compressed in sanitary-fill cells by the action of the Bullclam powered by a TD-14A tractor. The manufacturer, the International Harvester Co., 180 N. Michigan Ave., Chicago, will furnish a demonstration of the Drott-International method of refuse disposal. For information, write to International Harvester of Chicago or Drott Mfg. Corp. of Milwaukee, Wis.

Pathfinder Pipe Locator

968 The Pathfinder, a product of the Pathfinder Co., locates the position and depth of pipes, tees, valves, and buried tools. This low-cost machine features a precision unit and bright safety paint. Full details may be obtained by writing to the Pathfinder Co., 1726 Beverly Drive, Pasadena 7, Calif.

Accounting Machine Does the Work of Three

969 The Burroughs Adding Machine Co. reports that its accounting machine can do the work of three separate machines. Its product will do both budgetary and payroll accounting. Only two operations are needed for payroll accounting. For the booklet, *Streamlined Accounting*, write to the Burroughs Adding Machine Co., Detroit 32, Mich.

Strengthens Existing Sewers

970 A new 64-page bulletin, D2400, is issued by the Cement Gun Co., Allentown, Pa., and will be sent you on request. The firm's product, "Gunite," strengthens existing sewers, and can be used on brick and tile.

(Please Turn to Page 32)

Now!

New principle for backhoes provides

UNBELIEVABLE DIGGING POWER

It's in the New Sherman Power Digger!

- Patented, actuated bucket gives you selective digging action, better loading, greater versatility.
- All-hydraulic action—made possible by heavy-duty hydraulic cylinders—assures efficient performance.

Specifications

Shovel reach below ground surface	8 feet
Digger reach behind tractor	10 feet
Swinging arc	140°
Trench width, standard digging shovel, single cut	18 inches
Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet

• *Standard tractor mounting gives unmatched maneuverability and transportability.*

• *Digs ditches, trenches, footings, culverts, basements and other excavations.*

• *Handles roots, rocks, hard clay and oiled road surfaces.*

• *Works well behind the tractor at any angle.*

• *Actuated bucket raises high enough to load standard dump truck.*

Find out about this addition to the Sherman line of digging equipment. It is an economical answer to your digging problems. Write for literature today!

POWER DIGGER

MODEL 548100

Designed, Engineered and Manufactured Jointly By
SHERMAN PRODUCTS, INC. • Royal Oak, Michigan
WAIN-ROY CORP. • Hubbardston, Massachusetts

Sold Exclusively By
SHERMAN PRODUCTS, INC.

PATENT NO. 2,501,852 OTHER PATENTS PENDING

SHERMAN PRODUCTS, INC. • ROYAL OAK, MICHIGAN

Rockford, Ill. completes 3 times as many sewer jobs at ¼ the cost!

C. A. Larson...

Supt. Sewers, Rockford, Ill., reports it used to take *3 men a full day to complete ONE sewer repair by hand.* Now a high-speed BANTAM® clamshell on rubber tires completes 3 to 4 SERVICE JOBS PER DAY — including breaking through 20' to 30' of pavement and digging down 10' to 12' to make the repair. Versatile Bantam also keeps busy stockpiling and loading sand, cinders, aggregate . . . cleaning creek beds . . . breaking ice gorges . . . *has cut sewer department operating costs "at least 75%".* Your city, too, can save money with a low-cost BANTAM.

CHECK BANTAM'S cost-saving features

- 5-ton — ⅝ yd. capacity, with ½ yd. re-handling bucket, 1½ yd. snow bucket.
- Mounts on new or used tandem axle truck.
- Goes anywhere, anytime over city streets, paved roads or cross country.
- Simple, fast, RUGGED. Low maintenance!

Clip... Mail today!

SCHIELD BANTAM CO., 234 Park St., Waverly, Iowa SB-MU-1

Send details on truck-mounted Bantam

☐ Shovel ($6195)* ☐ Hoe ($6040)* ☐ Pile Driver ($6110)* ☐ Crane ($5520)* ☐ Dragline ($5940)* ☐ Clamshell ($6080)*

Title_____

Name_____

Company_____

Address_____ State_____

City_____

Less truck. F.O.B. Waverly, Iowa. Prices subject to change without notice.

SCHIELD BANTAM

Costs less . . . goes anywhere fast

GETS MORE JOBS DONE

Other Catalogs

Use the Coupon on Page 25

For Ice and Snow Control

971 Ice and snow are dangerous hazards this season. Applying Cayuga rock salt makes for fewer accidents, is less work, and is easy to handle, announces the Cayuga Rock Salt Co., Inc., Myers, N. Y. This method cuts costs by 50%, and each salt pellet goes to work immediately, keeping the snow in a soft and workable condition.

Hot Spray Bars

972 For ever-ready action in operation, Fraco Full Circulating Hot Spray Bars fit any oil distributor. They have sharp edges and even distribution; nozzles, each controlled separately, give positive action; require no external heat, and have full circulation. The cut-off action is positive and instantaneous and all valves are machined to a snug fit of corrosion resistant material. For full details, write to the manufacturer, The Fraco Mfg. Co., Richwood, Ohio.

For Cutting Pipe

973 Water-works men in search of pipe-cutting tools may find the answer in the Ellis pipe cutter used for large sizes of pipe. Model No. 01 cuts pipe four to eight inches, and No. 1, four to 12 inches. The circular and price list No. 33AC may be obtained from the manufacturer, the Ellis & Ford Mfg. Co., Ferndale 20, Mich.

Big-Container Rubbish Collection

974 In order to cut costs and increase cleanliness, many cities use the Dempster-Dumpster system for bulk rubbish collection. This method triples man-hour efficiency, reduces truck investment, gas, oil, maintenance costs, and reduces fire hazards. The Dempster-Dumpster system has completely closed steel containers which are fireproof and ratproof. Full details will be sent by Dempster Bros., 8120 Dempster Bldg., Knoxville 17, Tenn.

Water-Works Pumps

975 The Allis-Chalmers Mfg. Co., 1185A S. 70th St., Milwaukee, Wis., on request will send a sales representative or a copy of its Bulletin 52B6059G, listing a complete line of centrifugal pumps. The firm reports many cities are planning their water-works programs for the future by using Allis-Chalmers facilities for handling municipal pumping problems.

Need to Build Submerged Pipelines?

976 The Boyce Co., Clearwater, Fla., will install submerged pipelines anywhere in the world. Further information on these pipelines will be sent on request.

Cuts Sewer Cleaning Costs

977 Only one operation is needed when you use OK Champion Power Sewer Cleaner equipment. Manufactured by Champion Corp., 4716 Sheffield Ave., Hammond, Ind. The sewer cleaner is low in maintenance cost and avoids expensive backwash. Write the company for literature about this product which cuts sewer cleaning costs.

Do Your City Building Walls Leak?

978 If they do, the time to waterproof them is overdue. Leaky walls allow steel to rust, plaster to decay, paint to fall, and walls to disintegrate. You can get a survey of your buildings without obligation by writing the Structural Waterproofing Corp., 1619 Builders Bldg., 228 No. La Salle St., Chicago 1, Ill. The company has offices in the principal large cities. It also is ready to send further information relative to your particular building maintenance problem.

(See Page 34 for More Bulletins)

Good Roads MACHINERY

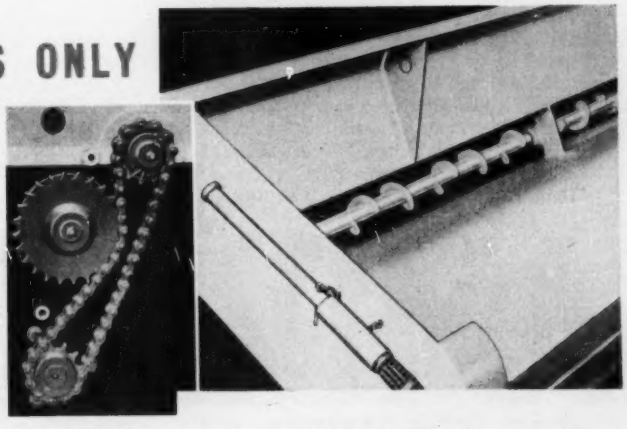
HANDY SPREADER

AVAILABLE IN 5 MODELS . . UP TO 12 FEET IN WIDTH

FLEXIBLE KEYBOARD...
of tempered spring-steel permits obstacles in material to drop through without clogging or marring spread pattern.

- NO SHIFTING OF GEARS
  fully automatic, free-wheeling gear box
- INSTANTANEOUS SHUT-OFF
  a one lever operation
- POWDER FINE CARPET SPREAD TO A 3-INCH DEPTH
  controlled by Micrometer Depth Adjustment
- NO CLOGGING
  oversize particles work through Flexible Keyboard without emptying hopper
- SPREAD HEAVY ON ONE SIDE . . . LIGHT ON THE OTHER
  utilize Taper Attachment for this effect
- TRUCK HITCHES TO SPREADER FROM ANY ANGLE
  positive Locking Automatic Hitch

AUTOMATIC AGITATOR WORKS ONLY WHEN IT IS NEEDED



Agitator driven from feed roll turns automatically in same direction as roll whether spreading forward or reverse, and assume neutral position without shifting gears when keyboard is closed. Inset shows outer agitator drive mechanism which is completely encased when assembled.

GOOD ROADS MACHINERY CORP. MINERVA, OHIO

On this modern New York City parkway it's

AMPLEX STREET LIGHTING LAMPS!

MANY OF THE LARGEST American municipalities and public utilities have standardized on Amplex Street Lighting Lamps both for superior lighting and for the extraordinary savings that they bring to every installation. These lamps are specially designed and built to survive the vibration and shock of road traffic and to maintain a maximum percentage of light output throughout their long-burning life.

Amplex offers you the most complete line of street lighting lamps ever put on the market . . . a type and wattage for every kind of service. Among these, Amplex Weatherproof Bulbs are probably today's fastest-growing specification. Amplex Weatherproof Lamps are formed of "hard glass," ending failures due to climatic conditions . . . providing maximum dependability and savings.

For full facts about Amplex Street Lighting Lamps and their superior performance, write Amplex Corporation, Dept. K-1, 111 Water Street, Brooklyn 1, New York.

AMPLEX

Sealed-Beam Reflector Lamps, Colorbeam Lamps, Spotlites and Floodlites, Industrial Infra-Red Heat Lamps, Vibration and Rough Service Lamps, Street Lighting Lamps, Traffic Signal Lamps, Incandescent Lamps, Fluorescent Tubes, Display Accessories.

Get These Free

Use the Coupon on Page 25

Cast-Iron Pipe and Fittings

979 Practically no maintenance, repair, or replacement is required when you use Clow cast-iron pipe and fittings for your municipal water supply. The pipe is centrifugally cast in sizes from three to 24 inches, in 18-inch lengths, and for working water pressures to 250 pounds. It can be easily cut in the field if needed. The booklet, "Pipe Economy," describing this product will be sent on request by the manufacturer, James B. Clow and Sons, 201-299 N. Talman Ave., Chicago 80, Ill.

Take the Shake Out of Machine Mounts

980 The Type LK Vibro-Isolator incorporates the best design features and advantages of Korfund Type V, S, SM, and SL Vibro-Isolators. Easily installed on pumps, motors, engines, blowers, and other equipment subject to vibration, it increases machine life, cuts damage to structures, reduces noise, reduces foundation costs. Write for free illustrated literature to The Korfund Co., Inc., 48-15 32nd Place, Long Island City, 1, N. Y.

Clamps for Water Mains

981 Carson Bell-Joint Clamps are adjustable, rugged, easy to apply, and make joints leak proof. Available in sizes four to 48 inches, inclusive, they fit variations in outside bell circumference, compress gasket uniformly and make snug fit around spigot. They are used for new mains and old ones. The manufacturer, Carson-Cadillac Corp., 1201 Pinson St., Birmingham, Ala., will send further information on request.

This Makes Water Filters Perform Better

982 Anthrafilt, manufactured by the Anthracite Equipment Corp., is finely ground anthracite coal, used instead of sand. It uses only half as much wash water, and has a long record of fine service in water-filter plants throughout the country. Additional information will be sent by the Palmer Filter Equipment Co., 822 E. 8th St., Erie, Pa., representatives for the Anthracite Equipment Corp., Anthracite Institute Bldg., Wilkes-Barre, Pa.

How to Install Asbestos Cement Pipe

983 It is all told in one pocket-size, ring-bound book—how to unload the pipe, how to dig the trench, how to lower the pipe into the trench, to assemble and cut it, how to backfill, to test and handle it around hydrants or special connections, and how to make repairs. You can obtain the book by asking for *Transite Pressure Pipe Installation Guide*, published by Johns-Manville Corp., 22 E. 40th St., New York 16, N. Y.

Prefabricated Insulated Piping

984 Ric-wiL Insulated Pipe is prefabricated of highest quality protective and insulating materials to insure long, trouble-free service and fine operating performance. Consulting service is available to contractors and engineers for planning and designing efficient insulated piping systems. For full details, write the Ric-wiL Co., Dept. 11-DA, Cleveland, Ohio.

New Motor Grader And Portable Roller

985 The new model Galion variable weight portable roller features steering that is done by hydraulic power under fingertip control, and its compaction effectiveness equals that of a conventional five- to seven-ton tandem roller. The Galion No. 118 motor grader, of extra heavy-duty class, has six overlapping forward speeds from 1.3 to 22.6 mph, two reverse speeds, and a 100-hp diesel engine. For full details on these products, write to The Galion Iron Works & Mfg. Co., Galion, Ohio.

new Gar Wood DOZERS

FOR *NEW* PRODUCTION RECORDS

These entirely new Gar Wood dozers are perfectly matched for the new Allis-Chalmers HD-9 and HD-15 tractors. Engine-mounted hydraulic dozers have all hydraulic equipment in one compact streamlined "package" mounted over tractor radiator. Both hydraulic and cable dozers have new tilt screw at frame trunnions for easy and quick vertical blade adjustment. They have many other money-making features ... ask your nearest Gar Wood—Allis-Chalmers dealer.

Matched with NEW ALLIS-CHALMERS HD-15 Tractor

- GAR WOOD Model CD-153 Cable Dozecaster (shown with Model 151 Front Mounted Control Unit)
- GAR WOOD Model CT-153 Cable Tipdozer
- GAR WOOD Model HD-153 Hydraulic Dozecaster
- GAR WOOD Model HT-153 Hydraulic Tipdozer

Matched with NEW ALLIS-CHALMERS HD-9 Tractor

- GAR WOOD Model HT-93 Hydraulic Tipdozer (shown)
- GAR WOOD Model HD-93 Hydraulic Dozecaster

GAR WOOD INDUSTRIES, INC.

Findlay Division • Findlay, Ohio

MANUFACTURERS OF GAR WOOD TRACTOR EQUIPMENT FOR ALLIS-CHALMERS INDUSTRIAL TRACTORS

GAR WOOD GW INDUSTRIES

SEE INSIDE

now TWO MORE

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

The World's Most Modern Line of Crawler Tractors

Here's

BIG NEWS

for Tractor Users

Completely New Allis-C

NEW POWER RATING

POWER, WEIGHT, BALANCE put them in a class of their own — never such traction . . . such pulling, pushing or lifting ability. And the smooth-operating GM 2-Cycle Diesel engines work without strain under the most extreme conditions.

NEW STRENGTH

All parts are designed and built to carry their loads with a margin of safety. No need to go to a larger tractor just for strength alone. The HD-9 and HD-15 set new standards for tractor quality.

NEW DESIGN SIMPLICITY...

for Easier Control and Greater Operator Comfort—Easy-shift transmission • Self-energizing brakes • Booster steering controls • Adjustable, cushioned seat • Wide arm rests • Convenient controls and pedals • Full visibility • Instant electric starting.

for Simplified Servicing—Unit construction permits removing major assemblies without disturbing companion groups • Extended lubrication periods throughout—1,000 hours on truck wheels, idlers and support rollers.

Complete Line of Matched Equipment, Developed in Cooperation With Allied Manufacturers, Available For Both The HD-9 and HD-15

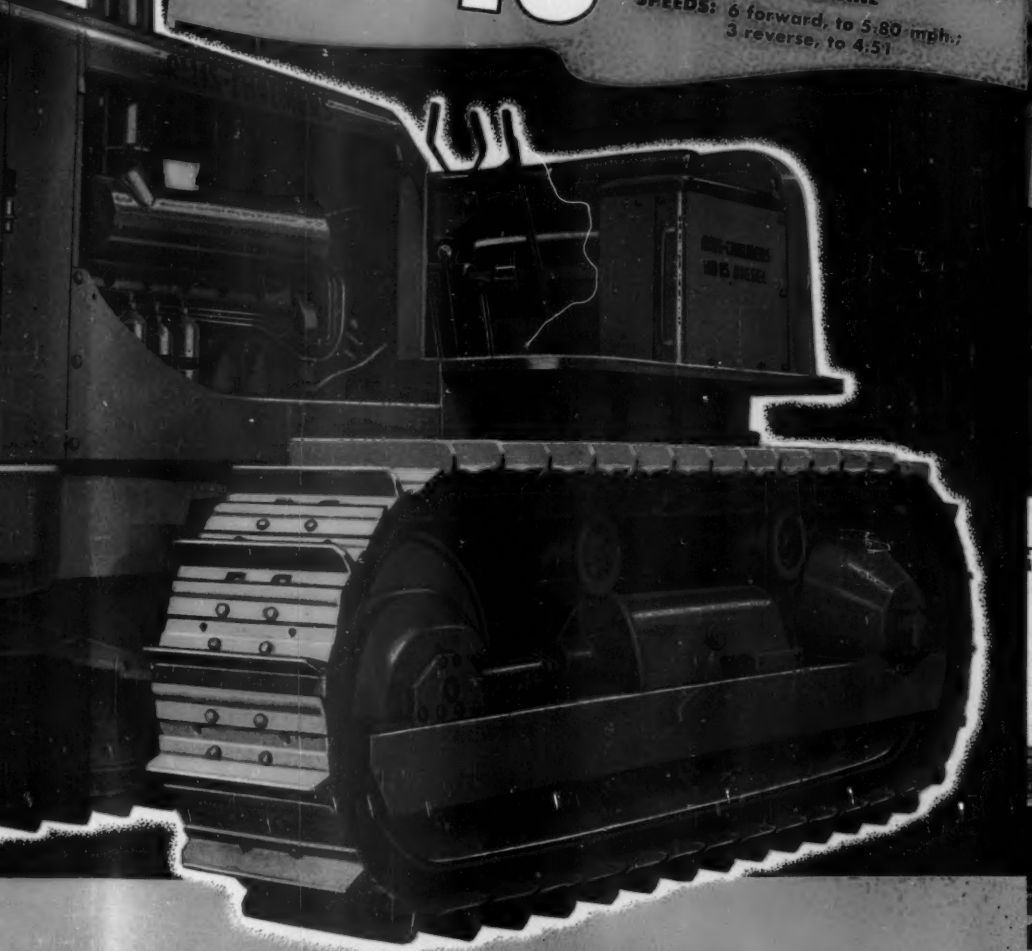
✓ For Greater Production
✓ For Easier Operation
✓ For Simplified Servicing

OUT AHEAD Mo
set

Chalmers Tractors

HD-15

WEIGHT: 27,500 lb.
102 DRAWBAR Hp.
GM 6-71 DIESEL ENGINE
SPEEDS: 6 forward, to 5.80 mph.;
3 reverse, to 4.51



Modern Allis-Chalmers Line sets New Tractor Standards

Each of these four Allis-Chalmers crawlers gives you a new yardstick for rating tractors. Each brings you a new kind of performance . . . plus new strength, operator comfort and service simplicity. For the finest in crawler tractors, see your Allis-Chalmers dealer.

view, chlorinator house
Cincinnati Filtration Plant.

ERNAN
NC.
ROL EQUIPMENT
N PRINCIPAL CITIES

THE
BAKER
FAMILY THEATRE
HYDRAULIC & CABLE
RIPPER
FOR
ALLIS-CHALMERS
FOR THE Smoothest Shave
ON THE FACE OF THE EARTH..
BAKER Blades
HOTEL
DRY GOODS
HYDRAULIC & CABLE
BULLDOZER
FOR
ALLIS-CHALMERS
Introducing
3
NEW ACTORS
for your
AC Tractors
"An Earthy Show"
The RIPPER
The STRIPPER
The GAY BLADE
HEADLINERS ON ANY SHOW · ANY WEEK!
Producers
THE BAKER MANUFACTURING COMPANY
SPRINGFIELD, ILLINOIS
Specialists in Hydraulic and Cable-Controlled Earthmoving Equipment for 43 Years

Cincinnati Case History

City of Cincinnati

DEPARTMENT OF WATER WORKS
FILTRATION PLANT
9660 KELLOGG AVENUE
CINCINNATI 26, OHIO

W. R. KELLOGG
CITY MANAGER

C. EBERLING, Supt.
E. B. EVANS
Supervisor of Water Purification

Cincinnati's Experience
With
Break-Point Chlorination

Cincinnati, Ohio started Break-Point Chlorination on February 10, 1949 by pre-chlorinating the raw Ohio River water-the source of its supply.

After one year of this treatment we have accomplished:

1. A great reduction in taste and odor complaints.
2. Entire elimation of presumptive gas forming and Coliform bacteria at the plant.
3. Reduction in the number of filters washed:
   10,287 washed in 1948—5,017 washed in 1949
4. Period of service of filters greatly increased,
5. A larger chloramine residual leaving the plant than we formerly were wont to carry.

At the present time we have not realized any savings in the cost of chemicals. This is primarily due to the type of water we must treat. Since the raw water has a low alkalinity the additional use of chlorine must of necessity call for soda ash treatment and therefore additional cost.

Regardless of the cost we feel that the efforts expended to install and maintain the Break-Point process of chlorination has been unquestionably justified.

Yours very truly,

CINCINNATI WATER WORKS

E. B. Evans
Sup'vr. of Water Purification

From: E. B. Evans

Exterior view, chlorinator house at the Cincinnati Filtration Plant.

WALLACE & TIERNAN
COMPANY, INC.
CHLORINE AND CHEMICAL CONTROL EQUIPMENT
NEWARK 1, NEW JERSEY • REPRESENTED IN PRINCIPAL CITIES

Parsons heavy-duty 221 Trenchliner

digs 8'-6" deep...16" to 36" wide

speeds city trenching at 3 cu. yds. per min.

With 30 digging feeds, from 6.5" to 165.9" per min., Parsons 221 Trenchliner assures maximum trench production at every digging level and in all kinds of materials . . . excavates up to 3 cu. yds. per minute. In addition, this versatile trencher has 3 bucket line and conveyor belt speeds, 4 travel speeds, plus full reverse of all operations for undercutting sidewalks, sewers, old mains, or making vertical set-ins. Telescopic, ladder-type boom locks at 18" intervals for digging to 8'-6" deep. Three standard size buckets with special side cutters and oversize teeth provide 12 different cutting widths from 16" to 36".

Off-set digging ability further increases flexibility to meet special problems of city trenching. 221 Trenchliner cuts within 10" of curbs, poles and buildings in streets and narrow alleys. Digging boom shifts across full width of machine, cuts as efficiently behind either crawler as it does in center position. Reversible, power-shift spoil conveyor gives controlled discharge on either side . . . shifts through machine in less than 1 minute, dodges side obstructions without swerving from grade line. Arc of conveyor provides constant 6'-4" discharge height, regardless of digging boom position, for loading into trucks . . . or gives low-level drop for close-to-trench deposit.

Extra-heavy-duty in every detail, from its self-cleaning tractor-type crawlers and all-welded, trussed, arch-type main frame, to its high carbon steel digging buckets, this Parsons 221 Trenchliner maintains steady, high-speed schedules . . . produces clean-cut, smooth-walled trenches fast, at lowest cost per foot. Contact your Parsons distributor for complete facts and figures . . . or send for catalogs on any of the 5 Trenchliner sizes in the modern Parsons line.

PARSONS QUALITY KOEHRING PRODUCT

PARSONS Trenchliners®

PARSONS COMPANY, NEWTON, IOWA (Koehring Subsidiary)

10 or 25-TON Lift Service

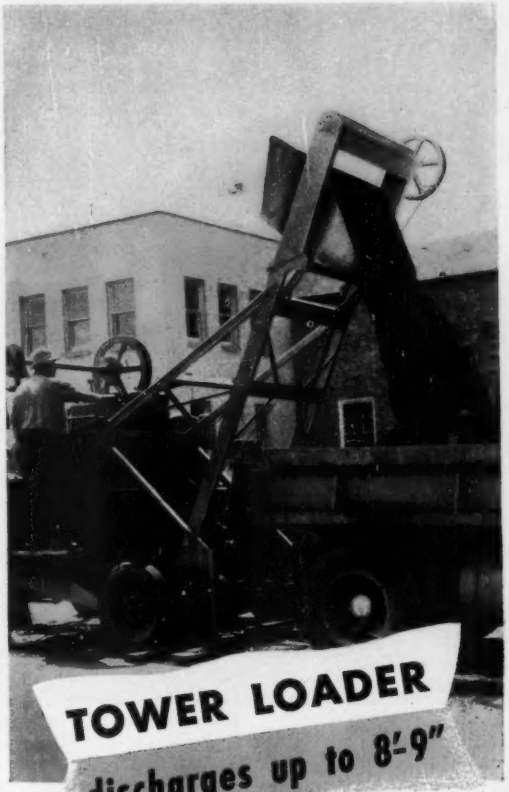
...WITH KOEHRING 35 M. P. H. TRUCK CRANES . . . . . .

On scattered lifting jobs requiring frequent moves, you can get extra load capacities, reach and extra speed with Koehring Truck Cranes. Model 304 safely lifts 50,000 lbs. . . . 11.1 tons more than its crawler rating. Extra stability of truck crane mounting increases boom reach from 75′ to a maximum 110′. Koehring 205 Truck Crane (below), with its 20,000 lb. lift on rubber, increases load capacity almost one-half. Maximum boom length is stepped up from 50′ to 85′. These mobile Truck Cranes roll along at 30 to 35 m.p.h. . . . no waiting for trailer, no planking. Hinged booms fold back for ample clearance . . . saves more time every move.

Koehring 304 is also available on rubber-tired cruiser mounting. Other Koehring Crane sizes include 36-ton 605, and big 79½-ton 1005. For more information, see your Koehring Distributor, or write to us.

KOEHRING *Cranes*

KOEHRING COMPANY, MILWAUKEE 16, WIS.
Subsidiaries: JOHNSON • PARSONS • KWIK-MIX



TOWER LOADER discharges up to 8′-9″

...WITH KWIK-MIX BITUMINOUS MIXERS...

Now you can discharge bituminous mix into trucks, overhead hoppers, or stockpile with Kwik-Mix Tower Loader attachment. Available for both Kwik-Mix 10 and 14 cu. ft. Bituminous Mixers, it provides 7′-9″ to 8′-9″ discharge height . . . saves time and cost of overhead mixer installations on many jobs. Big bucket holds full mixer batch, is raised by power, dumps automatically at top of tower. Bucket travel and discharge are completed while next batch is being mixed . . . no delay to mixer production. It is single lever controlled by mixer operator . . . mixer engine supplies the power. Tower Loader is quickly collapsed for ample travel clearance . . . is also available on Kwik-Mix 16-S and 11-S Dandie® Concrete Mixers for 9′-2″ overhead discharge. Ask your Kwik-Mix distributor for the facts, or write us. Also check Kwik-Mix line of bituminous, concrete, plaster-mortar mixers, and power wheelbarrow.

KWIK-MIX *Mixers*

KWIK-MIX COMPANY, PORT WASHINGTON, WIS.
Koehring Subsidiary

Saved City's Life: This International UD18-A took over single-handed when main water works pump motor failed.

"SOME PUMPIN'"

says Pompano of UD 18-A

Down in Pompano Beach, Florida, an International UD18-A Diesel was put in the pumping station on a stand-by basis. Eight weeks later the main motor and switch burned out, and the International took over. Running steadily and alone, it supplied 850,000 gallons of water a day to 12,000 people. "It not only saved MY life," says Water Superintendent Smith, "it saved the city's, too!"

Other International diesel and gasoline power units help put the "work" in public works in thousands of communities, in dozens of ways. They're equal to emergencies, ready for steady service day in, day out. They're yours in eleven sizes, up to 180 working h.p. Your International Industrial Distributor or Power Unit Dealer has the whole story. See him now—and plan to make your budget for power go further with "Power that Pays!"

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

INTERNATIONAL HARVESTER

POWER THAT PAYS

You Choose More than a Truck

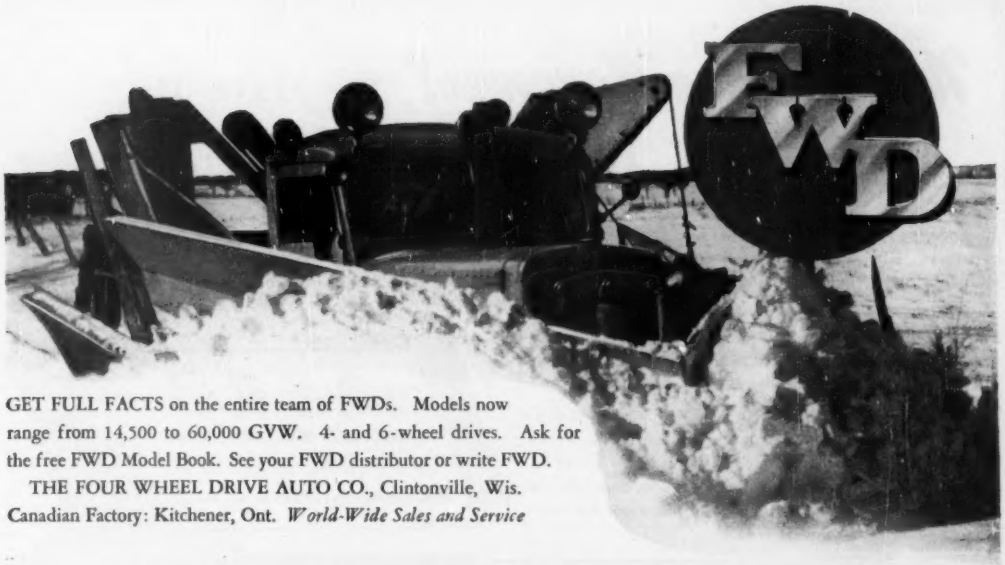
WHEN YOU CHOOSE AN FWD

You choose the ability to DO MORE WORK PER YEAR

"When other trucks must stay at home . . . our FWDs are on the job. It pays out the year 'round on hauling . . . maintenance . . . snow and ice control . . . doing a *better* job and with *greater safety* — both on or off the highway."

You choose lower maintenance costs . . . longer truck life

"Our FWDs need fewer repairs because there's less strain . . . both load and power are properly distributed. We've found that an FWD has up to twice the life."

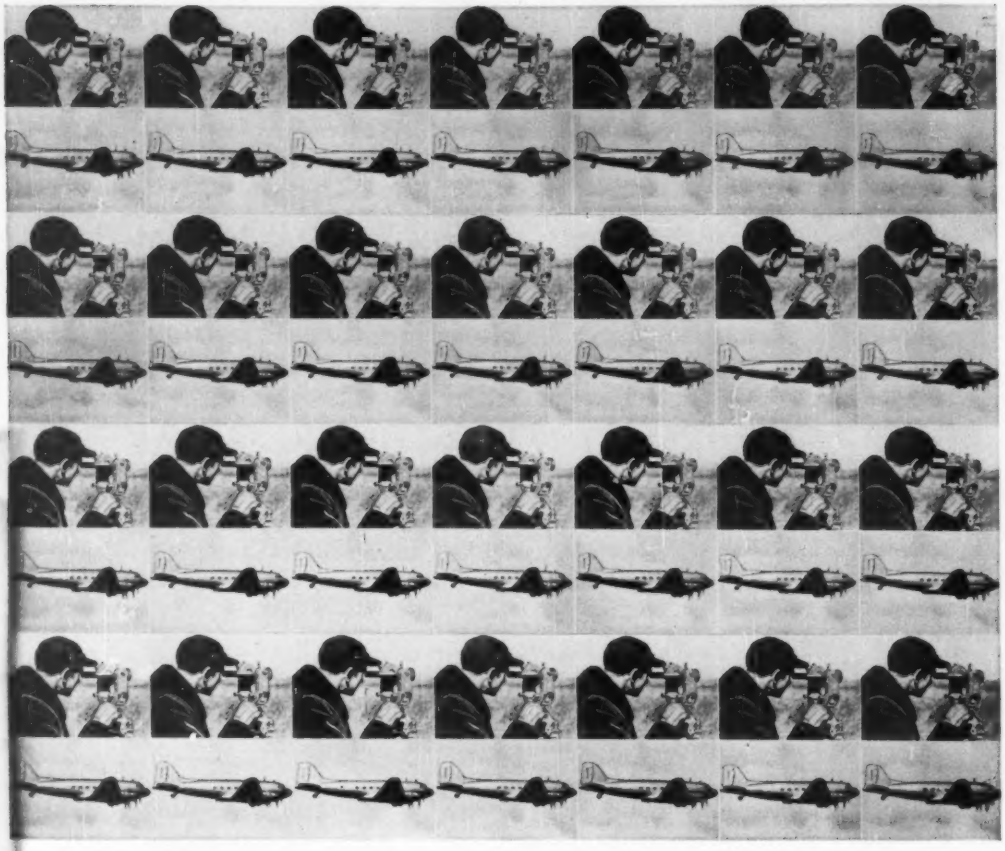


GET FULL FACTS on the entire team of FWDs. Models now range from 14,500 to 60,000 GVW. 4- and 6-wheel drives. Ask for the free FWD Model Book. See your FWD distributor or write FWD.

THE FOUR WHEEL DRIVE AUTO CO., Clintonville, Wis.

Canadian Factory: Kitchener, Ont. *World-Wide Sales and Service*

America's Foremost Heavy-Duty Truck



Need Mapping Manpower? We Have It.

To Do The Job *Faster, Cheaper*

Engineering manpower is hard to come by now. And it's expensive. But there's no need to expand your own staff to meet today's big push for maps.

You can avoid costly expansion because our staff of 200 mapping experts is equipped and ready to do city mapping anywhere. AERO will do the job far faster than plane table methods. And in many cases, *our costs are half those of ground surveys.*

We map by tested and precise photogrammetric methods. Our reliable topographic maps, made to contour intervals of 2 and 5 feet—are being used extensively for city planning. Our controlled photo-mosaics provide general coverage at lowest cost.

Of course, each map requirement has its special problems. You want specific answers—costs, accuracy, deliveries. That's where our 31 years' experience can be helpful. Let us meet with you. Write Aero Service today.

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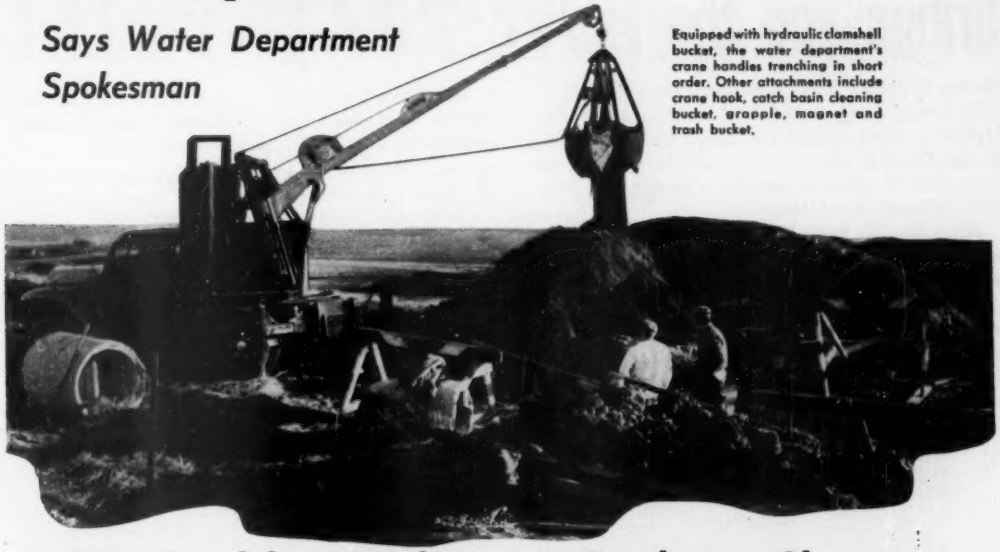
236 E. COURTLAND ST., PHILA. 20, PA.
Oldest Flying Corporation in the World

TOPOGRAPHIC MAPS • PLANIMETRIC MAPS • PRECISE AERIAL MOSAICS • AIRBORNE MAGNETOMETER SURVEYS • RELIEF MODELS • COLOR PHOTOGRAPHY

Leaks repaired three times faster with Hydrocrane

Says Water Department Spokesman



Equipped with hydraulic clamshell bucket, the water department's crane handles trenching in short order. Other attachments include crane hook, catch basin cleaning bucket, grapple, magnet and trash bucket.

Rig Enables Utility to Reduce Charges

"Water main and hydrant leaks are repaired three times faster since we use a Hydrocrane," reports Elmer L. Nordness, Asst. Supt. of the Madison, Wis. Water Dept. "An average repair took five men a whole day—now three men and a Hydrocrane do the job in less than three hours. Even in these days of rising costs we reduced water service installation charges because of the Hydrocrane's cost-cutting speed."

• Repair Men Don't Mind Leak Work Now

No more heavy rubber trench boots . . . no more slippery, dangerous footing . . . no more heavy, sticky mud on shovels — a few reasons why repair men are happy since the department modernized with a Hydrocrane. Also, the crane loads directly from ditch to truck. Workmen used to shovel mud onto the street, then into trucks — a slow expensive method.

• "Telescoping Boom Sold Us"

"Often on stop valve repair or in replacing hydrants we must work next to poles and under overhanging branches," Nordness remarked. "In these spots the telescoping boom has a tremendous advantage. This feature was the real clincher that sold us on the Hydrocrane."

• Busy All The Time

The department's two cranes (they recently purchased a new H-3) are busy every day — repairing leaks . . . digging manholes, meter pits and ditches . . . loading, unloading, and setting pipe . . . handling fittings . . . and for general yard work. By using it to haul pipe carrying trailers to the job, the department eliminates an extra truck.

Two Hydrocrane sizes — ¼ yd. 2-ton; ⅜ yd. 3-ton. Send the coupon for full details.

BUCYRUS ERIE HYDROCRANE
South Milwaukee, Wisconsin

BUCYRUS-ERIE HYDROCRANE DIVISION
South Milwaukee, Wisconsin

Gentlemen: Tell me how the Hydrocrane can speed up my jobs.

Name.....

Company.....

Address.....

City..... State.....

BAMSO

ADVANCED BADGER ENGINEERING brings you the DOVETAIL THRUST ROLLER INSERT

Because BADGER METER engineers refuse to "rest on their laurels," they continue to maintain the world's highest standards of water meter performance. This new Badger Dovetail Thrust Roller Insert is typical of the constructive research and precision achievements in progress continually at BADGER.

What does this Badger Dovetail Thrust Roller Insert accomplish? It saves important time and replacement costs . . . because, with this removable plate set into the chamber wall, the thrust roller (in the disc) rolls against the *insert* only . . . thus preventing wear directly in the chamber thrust roller *slot* (which would damage the chamber itself). If wear occurs on the *insert,* that is no problem, because it can be replaced easily, at a small fraction of the cost and time required to replace an entire new chamber.

In addition, advanced Badger engineering of this unique insert assures you of accurate metering through unimpaired freedom of disc movement, because:

1 Both halves of chamber remain stronger, since this insert requires only a short slot (about 77% shorter slot milled in chamber wall).

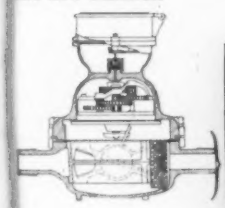
2 Precision design and machining permit insert to be held accurately and securely in place between the two halves of the chamber.

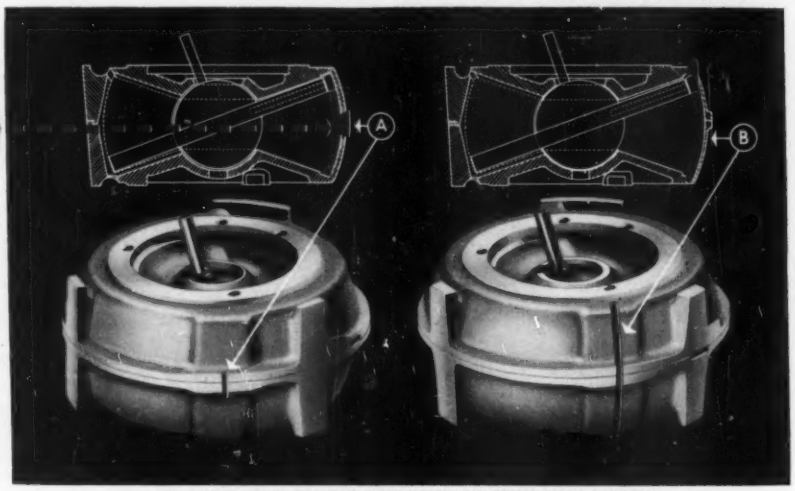
3 The precision dovetail design prevents insert from shifting or moving.

4 The increased radius of the insert along the area nearest the disc, assures ample clearance always between disc and insert, even in the extreme allowable vertical shift.

Only in BADGER METERS will you find this advanced type of engineering and precision production which has convinced waterworks men in over 5000 communities that "BADGERS are the best buy in meters."

. . . another "BADGER-*First*"

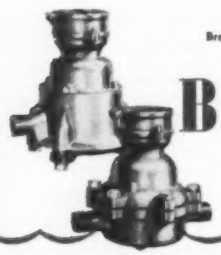




A New style: 77% shorter slot...adds strength to chamber-halves; prevents distortion. Dovetail prevents shifting of insert. Increased radius assures freedom of disc movement. No wear on chamber; wear confined to the easily replaceable insert.

B Old style: This full length slot weakened the chamber-halves . . . made them subject to distortion.

ASK ABOUT OTHER REASONS WHY YOU'LL DO BETTER WITH BADGERS



BADGER METER MFG. CO., Milwaukee 10, Wis.

Branch Offices: New York City • Philadelphia • Worcester, Mass. • Savannah, Ga. • Cincinnati • Chicago • Kansas City Waco, Texas • Salt Lake City, Utah • Guthrie, Okla. • Seattle, Wash. • Los Angeles

BADGER *Water* METERS

"MEASURING THE WATER OF THE WORLD"

First FOR ACCURACY • LOW-COST MAINTENANCE • DURABILITY • SENSITIVITY

Our Fire Front Needs Strong Weapons, Too!

America's firemen have once again stepped to the fore — not only as guardians against possible bombing conflagrations, but also against the increased fire hazards which accompany the full pressure industrial activity necessary to re-equip our Armed Forces.

But our *fire*fighters, too, must have modern weapons. Good planning demands that they have them *now* — in the form of apparatus and equipment that will not fail them in any battle they may face.

For its part, Mack pledges to the fire service its continued devotion to the highest standards of apparatus design, manufacture and maintenance. "Built by Mack" will continue to mean *performance that tops them all.*

Be Performance-Wise—

Modernize with

Mack
FIRE APPARATUS

MACK MANUFACTURING CORPORATION
Fire Apparatus Division, Long Island City 1, New York

Factory branches and distributors for service and parts in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

8703

TRIPLE COMBINATION PUMPERS — 500 TO 1500 GPM ... SQUAD AND HOSE CARS ... AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

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UNIFORM
FABRICS
Standard fabrics for over eighty years

Specify **386**
12 to 18 oz. serges
Tropical weight for shirtings · 18 oz. whipcord for breeches
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Also 20 and 30 oz. beavers and other standard fabrics

METCALF BROS. & CO. 45 EAST 17th STREET, NEW YORK CITY

STEEL
STRAPPING
IS INEXPENSIVE FOR ATTACHING STREET SIGNS

Hundreds of city and state highway departments vouch for the economy and worker convenience of A. J. Gerrard modern strapping methods.

STAINLESS STEEL—for permanent mounting.

GALVANIZED STEEL—for semi-permanent mounting (3 years).

Complete accessories in both metals.

For free demonstration or full information concerning the low-cost A. J. Gerrard method, write for name of nearest representative.

SS-2

A. J. Gerrard & Co.
1952 HAWTHORNE DRIVE • MELROSE PARK, ILL.
(Chicago Suburb)

WITH A WILKINSON LINE LOCATOR
You DON'T have to GUESS

WILKINSON LINE LOCATOR
the original lightweight, compact, precision locator
—is POWERFUL.

It locates every part of your underground pipe system, however deep and shows the depth of lines.

It's FAST, EXACT, SIMPLE.

Avoid expensive damage to subsurface structures by power trenching machines with the Wilkinson Line Locator, the electronic sleuth.

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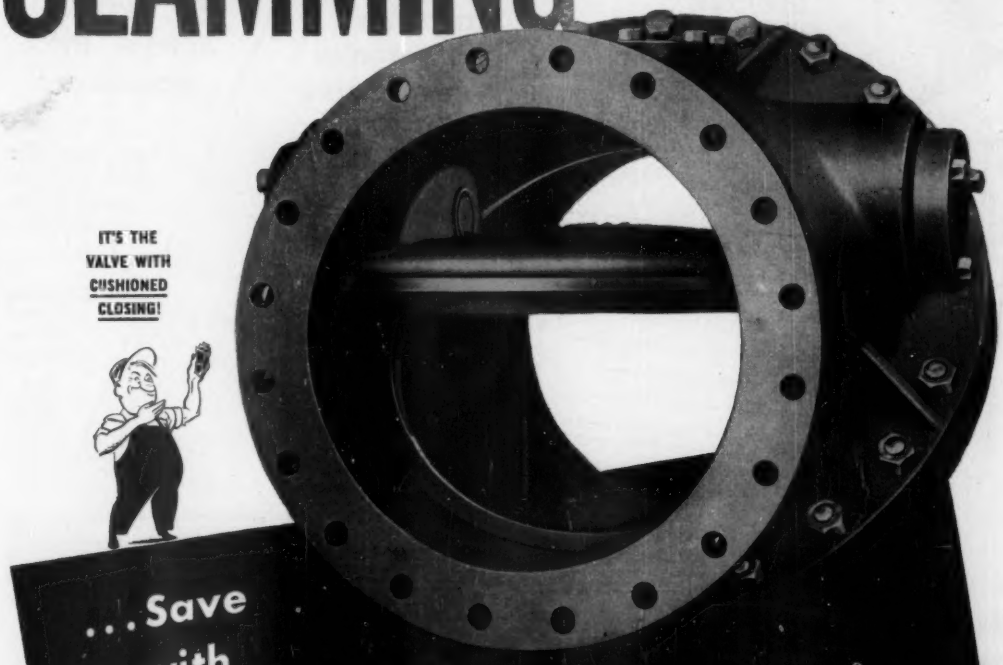
QUICK
FAST
EXACT

Imitators may copy the APPEARANCE, but not the PERFORMANCE of our instrument.

WILKINSON PRODUCTS CO.
P. O. BOX 1774
WILSHIRE-LA BREA STA.,
LOS ANGELES 36, CALIF.

SLAMMING COSTS YOU MONEY!

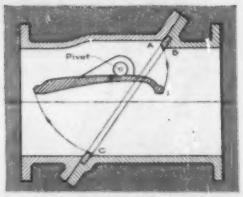


...Save with CHAPMAN TILTING-DISC CHECK VALVES

Switch to Chapman Tilting-Disc Check Valves and you'll eliminate the slamming that causes destructive pipe line stresses — that costs you *plenty* in extra maintenance.

With this check valve, the tilting disc rides smoothly on the flow. It lifts away easily when opening — closes quickly and quietly. There's no slamming — minimum wear on seats, hinge pins and bearings.

Available in iron and steel, for all pressures. Write today for additional information.



Cross-section of the Chapman Tilting-Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

The Chapman Valve Mfg. Co.

INDIAN ORCHARD, MASSACHUSETTS

HOW TO

keep out of the pavement breaking business!

. . . . . .

from a 2' 6" by 7' 6" trench Hydrauger BORES a straight open 200' long hole. Bore diameters — 2" through 24".

The BETTER WAY to install short runs of PIPE

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681 Market St., San Francisco 5, Calif.

Without obligation, please send me a copy of Hydrauger Bulletin which shows the low costs and high speeds of the Hydrauger.

Name_____

Address_____

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City_____

HY-21A

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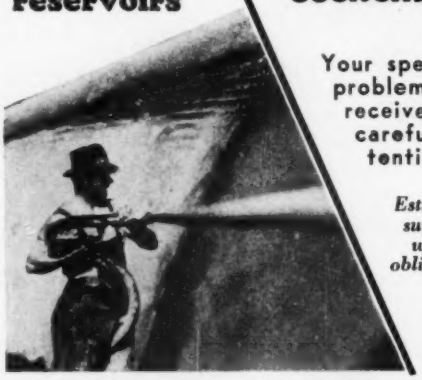
Earth Boring Tool

**Reg. U. S. Pat. Off.*

dams
tanks
sewers
tunnels
penstocks
reservoirs

"GUNITE"

repairs them all with speed and economy.



Your specific problem will receive our careful attention.

Estimates supplied without obligation

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PRESSURE CONCRETE CO.

193 Emmett St., Newark 5, N. J. • 315 South Court St., Florence, Ala.
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Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

CHAMPION CORPORATION
Hammond, Indiana

GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind. Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

ADDRESS.....

HOTEL **CLARIDGE**

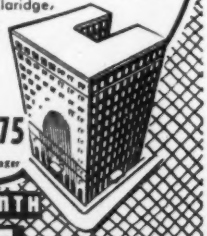
Give yourself a treat next time you head for St. Louis—make your reservation at Hotel Claridge it will be a tonic en-route when you think of the nice hot shower you will enjoy after a busy day and the grand night's sleep in one of the softest beds you ever dreamed of Come for vacation — for business or pleasure but first of all be sure to stay at the Claridge.

PLENTY OF PARKING SPACE

Visit the CLARIDGE LOUNGE
St. Louis' Most Beautiful Room.

350 ROOMS from $2.75

ERNIE SIMONS Manager



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ST. LOUIS MISSOURI

16" and UP

If your requirements call for transmission or distribution-mains of 16" diameter or larger, Lock Joint Pipe Company can provide high quality concrete pressure pipe in all standard diameters and some intermediate sizes. Starting at a minimum of 16", Lock Joint Concrete Pressure Pipe is produced in 32 different diameters, and its four distinct types of structural design cover every working condition common to American water works practice.

Not only does Lock Joint Concrete Pressure Pipe qualify fully under A.W.W.A. specifications, but it alone embodies, in a conventionally designed pipe priced to meet competition, all the nine time-tested characteristics listed at right:

- **PERMANENT HIGH CARRYING CAPACITY**
- **PROOF AGAINST TUBERCULATION, CORROSION AND ELECTROLYTIC DAMAGE**
- **IMMUNITY TO RUPTURE OR BLOW-OUT**
- **SAFETY UNDER EXTREME EXTERNAL LOADS**
- **EVERY JOINT FLEXIBLE AND WATERTIGHT**
- **EASILY TAPPED**
- **SPECIALS TO MEET INDIVIDUAL SPECIFICATIONS**
- **USEFUL LIFE CONSERVATIVELY ESTIMATED AT 100 YEARS**
- **MINIMUM MAINTENANCE AND REPAIR COSTS**

Whether your proposed line is large or small it will pay you to use Lock Joint Concrete Pressure Pipe, the pipe of proven durability, economy and dependability.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J., Turner, Kan., Detroit, Mich.

BRANCH OFFICES: Casper, Wyo. • Cheyenne, Wyo. • Denver, Col. Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn. • Tucumcari, N. Mex. Oklahoma City, Okla. • Tulsa, Okla.

Lake Shore Markers OF *Lifetime* Aluminum

CHOICE OF MANY PROGRESSIVE CITIES

•RUSTPROOF •DURABLE •ATTRACTIVE

DAY AND NIGHT VISIBILITY

ILLUSTRATED 4 3/4 – 4 WAY ASSEMBLY WITH BLOCK NUMBERS

Lake Shore Markers
DIVISION
LAKE SHORE PATTERN WORKS
654 WEST 19TH ST.
ERIE, PA.

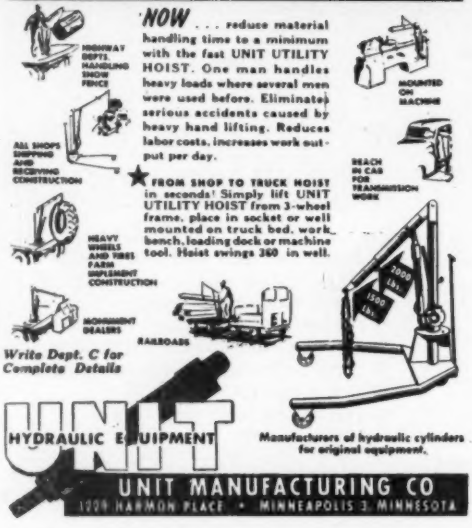
Write for Illustrated Catalog

ALUMINUM IS *Scarce!* TO INSURE DELIVERY OF SIGNS PLACE ORDERS NOW!

Unit "UTILITY" HOIST

HYDRAULICALLY OPERATED FOR SHOP OR TRUCK

FAST...EASY...SAFE!



NOW . . . reduce material handling time to a minimum with the fast UNIT UTILITY HOIST. One man handles heavy loads where several men were used before. Eliminates serious accidents caused by heavy hand lifting. Reduces labor costs, increases work output per day.

★ FROM SHOP TO TRUCK HOIST in seconds! Simply lift UNIT UTILITY HOIST from 3-wheel frame, place in socket or well mounted on truck bed, work bench, loading dock or machine tool. Hoist swings 360 in well.

Write Dept. C for Complete Details

UNIT HYDRAULIC EQUIPMENT

Manufacturers of hydraulic cylinders for original equipment.

UNIT MANUFACTURING CO

1209 HARMON PLACE • MINNEAPOLIS 3, MINNESOTA

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

Prompt Shipment

Inquiries and orders solicited

NORTHERN GRAVEL COMPANY

Muscatine, Iowa

P. O. Box No. 307 Phone: 193

Connery's Style W Heating Kettle Made in 75, 110, 165 and 210 Gallons.

For speedy heating of Tar and Asphalt for road, street and airport runway repairs use Connery's style W kettle, the most efficient heating kettle of its kind.

Write for Bulletin 87.

CONNERY CONSTRUCTION CO.

4000 N. Second Street Philadelphia 40, Pa.

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your city deserves the best — UNITED STATES BRONZE TABLETS...

for signs, statues, cornerstones, homes, hospitals, schools, municipal buildings

One of the country's largest plants devoted exclusively to bronze tablet work assures you of the *finest* in bronze at *lowest* prices. Free samples, sketches, estimates — prompt mail service. WRITE TODAY FOR FREE CATALOG!

"Bronze Tablet Headquarters"

UNITED STATES BRONZE SIGN CO., INC.

570 Broadway, Dept. AC, New York 12, N. Y.

THE HERSEY COMPOUND METER

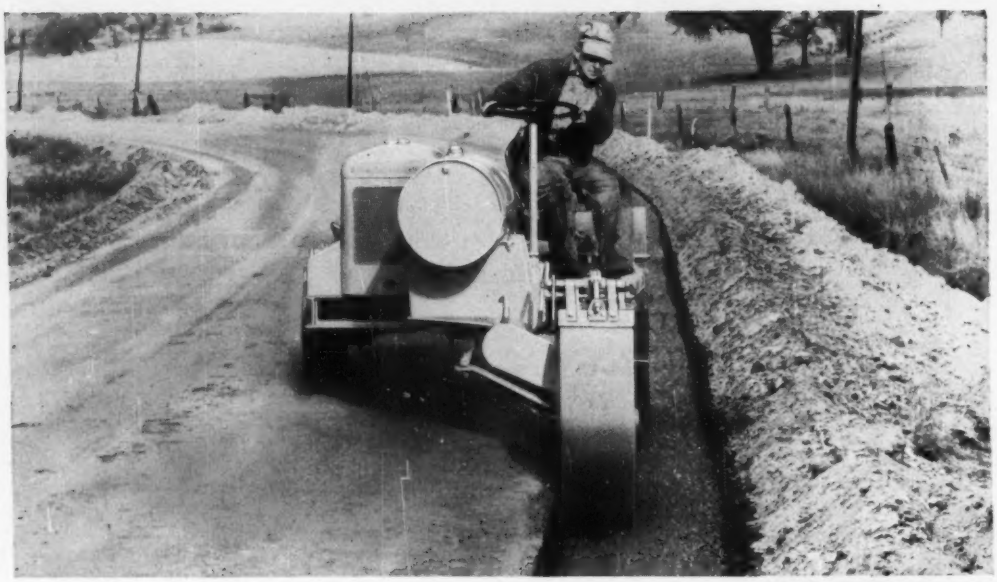
The leader in its field to-day as it has been for over forty years, the Hersey exclusive design has often been imitated, but never equaled. The name Hersey on a Compound Meter is your best guarantee of accurate and dependable service at low maintenance cost.

All-Bronze Cases 2" to 6"

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS CHICAGO SAN FRANCISCO — LOS ANGELES



ROAD WIDENING ------→ MADE EASY

Road widening came under the heading of "better solution wanted" back in the days when trench compaction meant costly hand-tamping—or using a 3-wheel roller at precarious angles on work it was not designed to perform. Today, thanks to the Buffalo-Springfield TR3-B Trench Roller, the headaches and hazards have been largely removed from this type of work.

The specially-designed TR3B trench roller has a 16" wide compression roll* which works *in* the trench. The large diameter of this roll prevents shearing or pushing of surface materials; insures an even penetrating compaction. Likewise, means are provided to increase the weight of the roll to produce compressions in excess of 325 lbs. per inch of roll face width.

*20 in. wide compression roll also available.

The roller is kept on a level plane by means of a small-diameter road wheel, which is raised or lowered hydraulically to suit the depth of the trench. The wheel control valve is conveniently located at the operator's station, permits him to hold the roller on a level plane while working in trenches up to 16" deep. Automotive-type steering and a compact instrument panel further simplify control.

Built with an eye to economical performance and low maintenance costs, the TR3B has increased production and trimmed operating costs on all types of trench compaction. If road widening looms prominently in your job picture, it will pay you to learn more about the Buffalo-Springfield Trench Roller from your nearest distributor. See him today.

Mail This Coupon Today

THE BUFFALO-SPRINGFIELD ROLLER CO.
Dept. H-1, Springfield, Ohio

☐ Please send me Catalog S-53-48 describing the right model for my requirements. ☐ Notify Distributor to call.

NAME .....

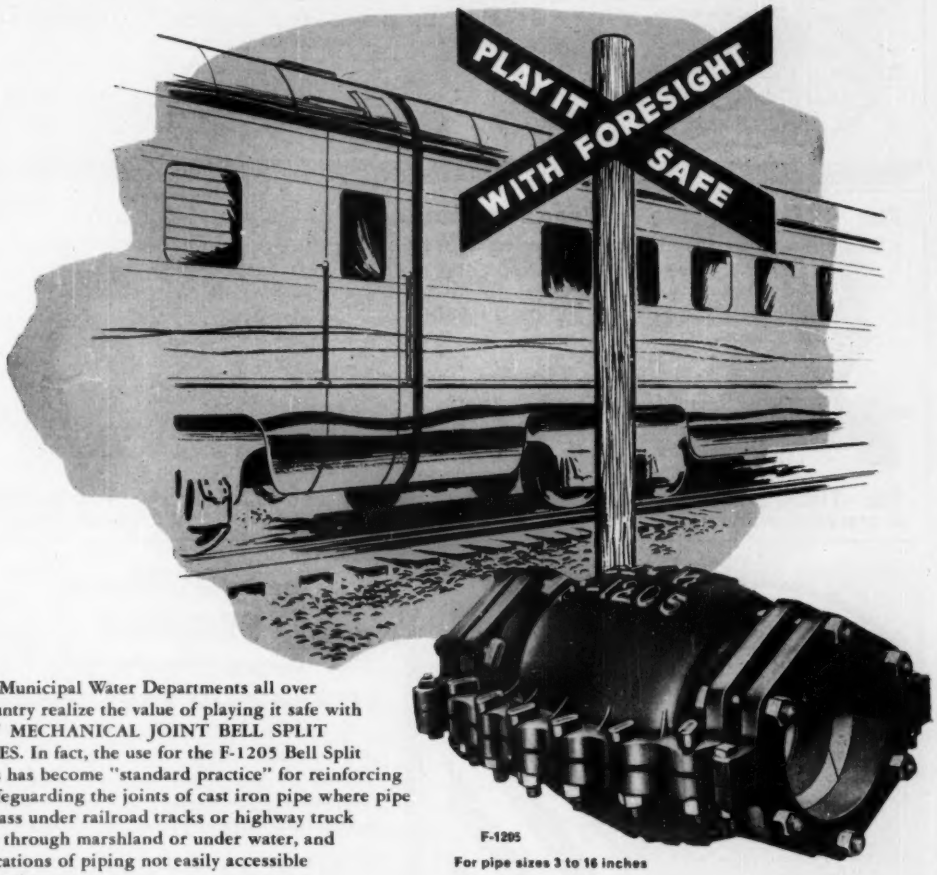
ADDRESS .....

CITY ..... STATE .....

BUFFALO SPRINGFIELD
THE STANDARD OF COMPARISON
SPRINGFIELD, OHIO

Where the pressure's on – reinforce and protect all joints of cast iron pipe with

CLOW BELL SPLIT SLEEVES

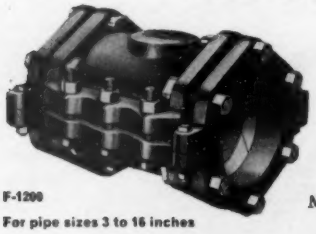


Today Municipal Water Departments all over the country realize the value of playing it safe with CLOW MECHANICAL JOINT BELL SPLIT SLEEVES. In fact, the use for the F-1205 Bell Split Sleeves has become "standard practice" for reinforcing and safeguarding the joints of cast iron pipe where pipe lines pass under railroad tracks or highway truck routes, through marshland or under water, and any locations of piping not easily accessible in case of emergency.

F-1205
For pipe sizes 3 to 16 inches

No Lead . . . No Jute . . . No Calking

Write for completely illustrated descriptive circular



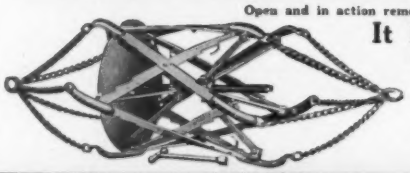
F-1200
For pipe sizes 3 to 16 inches

JAMES B. CLOW & SONS
201-299 North Talman Avenue • Chicago 80, Illinois
and their National Cast Iron Pipe Division, Birmingham, Ala.; subsidiaries Eddy Valve Co., Waterford, N. Y.; Iowa Valve Co., Oskaloosa, Ia.

Make repairs to pipe barrel with F-1200 Clow Mechanical Joint Straight Split Sleeves. Sizes 12-inch and smaller will repair length-wise breaks up to 8 inches; sizes 14-inch and 16-inch, up to 17 inches.

EXPANDING ROOT CUTTER & SEWER CLEANER

Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

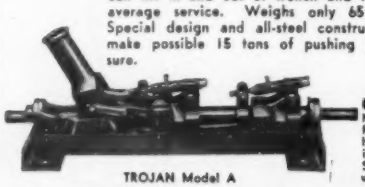
EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. Nappanee, Ind.

The TROJAN pipe puller and pusher — Cuts Costs! Saves Time!

• Simplifies installation or renewing water and gas service lines under pavement

MODEL A—for ½" to 1" pipe. One man can lift in and out of trench and install average service. Weighs only 65 lbs. Special design and all-steel construction make possible 15 tons of pushing pressure.

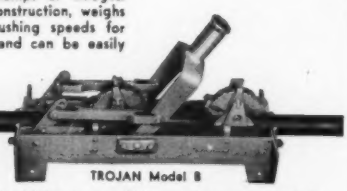


TROJAN Model A

DOUBLE ACTION AND CONTINUOUS OPERATION

No re-setting or grip required. Push pipe is made of double extra heavy steel pipe with inside couplings for butt joint. Pilots and Special Couplings will handle variety of jobs.

MODEL B—will push up to 2" pipe without additional dogs, clamps or wedges. Heavy duty, all-steel construction, weighs 140 lbs. Has three pushing speeds for different types of soil and can be easily reversed.



TROJAN Model B

The TROJAN Manufacturing Co., 441 East Water St., Troy, Ohio

41 GREENWAY—HAMDEN, CONN. BOX 465—MEMPHIS, TENN.

Approved for Safety

FLAMEFOIL GUARDSMAN CANVAS

is Flameproofed

Underwriters' Laboratories, Inc., California Fire Marshal and other local and national fire prevention authorities have approved Flamefoil.

The use of this modern fabric for awnings, tents, canopies and other canvas equipment reduces fire hazards considerably. Even when in direct contact with flame, Flamefoil will not burn beyond the immediate affected area. It can be recommended with safety . . . for safety.

Write for special bulletin describing the use of Flamefoil to reduce fire hazards. *Philadelphia Textile Finishers, Inc., Norristown, Pa.*

FLAMEFOIL GUARDSMAN CANVAS

Safety

Manufactured under Patents No. 2,299,612 and 2,044,176. Others pending.

FLAMEPROOFED . . . RESISTANT TO WATER, WEATHER, MILDEW

BUILDERS

WATER and SEWAGE WORKS EQUIPMENT

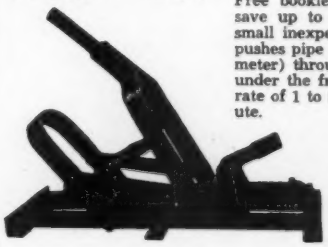
— for metering and controlling flow of liquids, air, dry materials — also for chlorinating water and sewage. For Bulletins and complete information, address Builders-Providence, Inc. (Division of Builders Iron Foundry), 350 Harris Ave., Providence 1, R. I.

BUILDERS-PROVIDENCE

DON'T LET

OLD MAN WINTER STOP *Your* PIPE INSTALLATIONS

Free booklet tells how to save up to 80% with this small inexpensive tool that pushes pipe (up to 15" diameter) through the ground, under the frost line, at the rate of 1 to 5 feet per minute.



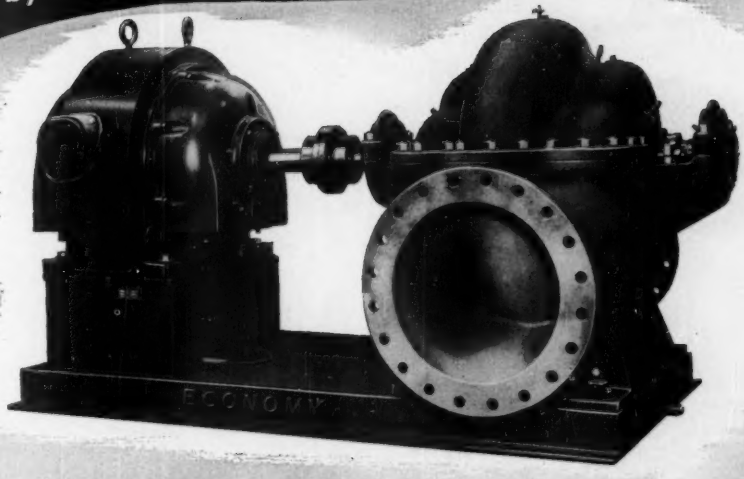
Address Dept. P

GIANT MFG. CO.

Council Bluffs, Ia.

when it's pumps, think of Economy

backed by over thirty years of specialized experience



The Type M Single Stage Double Suction Pump illustrated is just one of the many in the extensive line manufactured by Economy Pumps, Inc. This exceptionally rugged design is available in capacities from 50 to 30,000 gallons per minute at heads to 300 feet. A general purpose pump, it is ideally suited to general water supply or heavy mill service.

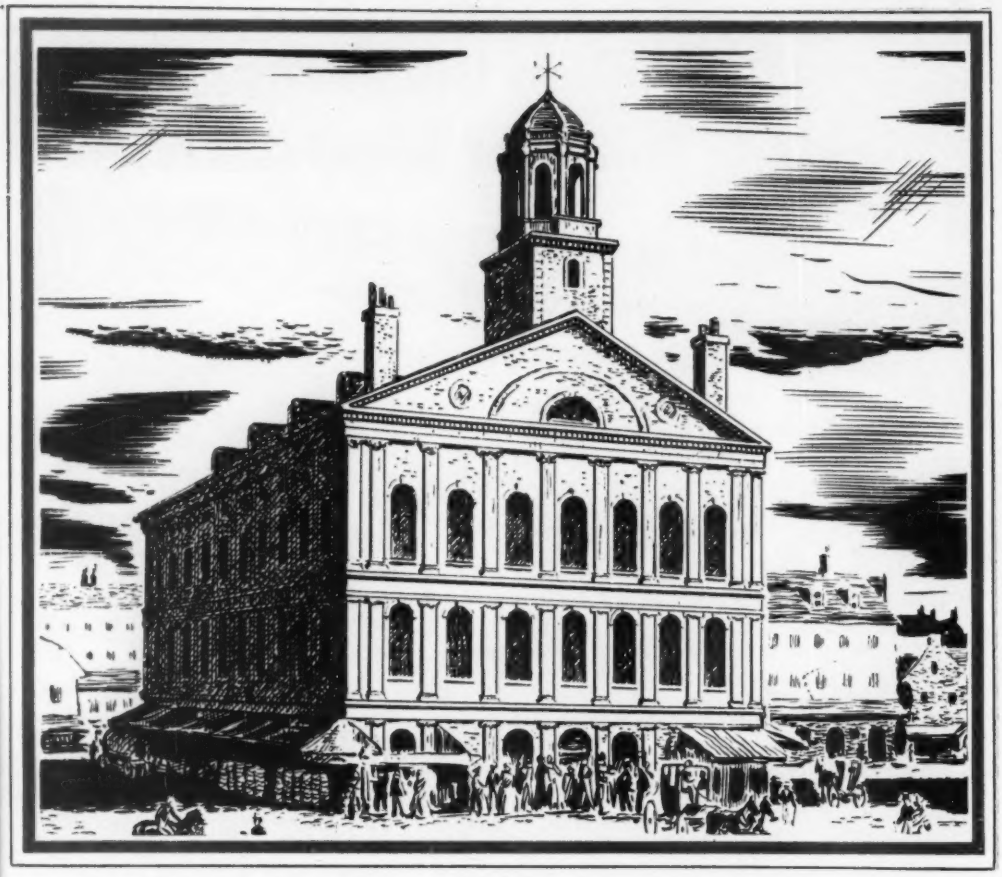
Maintenance expense is held to a minimum. Case records show Economy Pumps operating for fifteen to twenty years without replacement of major parts. However, should repairs be necessary, all parts subject to wear are renewable.

Economy Pumps are tested in accordance with the standards of the Hydraulic Institute and the A. S. M. E. under conditions duplicating as nearly as possible those encountered in actual service.

Catalog No. A750 gives complete design and construction details, also some interesting typical examples of performance, as well as handy selection tables. Write Dept. AB-1 for your copy.

Economy Pumps Inc.

DIVISION OF HAMILTON-THOMAS CORP., HAMILTON, OHIO



Boston's Faneuil Hall, popularly called "The Cradle of Liberty", as it looked 100 years ago.

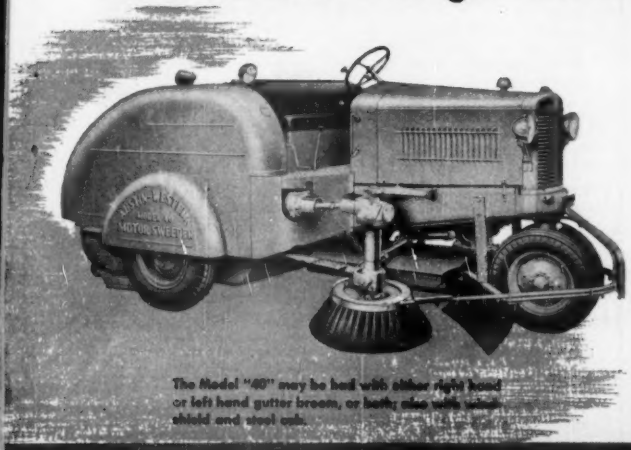
Boston, Massachusetts, has cast iron water and gas mains in service that were installed more than a century ago. In those days, modern pavements were unknown; labor costs were low. Today, the expense of unnecessarily frequent repairs to underground mains, or untimely replacements, and consequent restoration of costly pavements, is a risk you cannot afford to gamble with. Cast iron pipe has an established record of long life and low maintenance. It effectively resists corrosion and possesses the four strength factors so necessary to meet the stresses imposed by modern traffic and crowded underground construction. These are shock, crushing, bursting and beam strengths. No pipe deficient in any of these strength factors should ever be laid in paved streets of cities, towns and villages. **United States Pipe and Foundry Co., General Offices, Burlington, N. J. Plants and Sales Offices Throughout the U. S. A.**

U.S.
cast iron
PIPE
FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

NUMBER ONE OF A SERIES

Get a MODEL "40" with its

Three-Wheel Design • Front Steer and Hopper at Rear



The Model "40" may be had with either right hand or left hand gutter broom, or both; also with [illegible] shield and steel cab.

On any street, there are many things the operator of a sweeper has to watch, and with the Model "40" he sees them all. Only with this sweeper does he have unobstructed view of everything around him. There are no "blind" spots for the man behind the wheel of a Model "40."

Children don't always watch where they're going. Thanks to front steer and rear-mounted hopper, the Model "40" operator can do the watching for them, because he sits in the *natural* place "up front" where he can see what's going on.

And there's another important angle . . . not only can he operate the Model "40" *safely* but *efficiently* as well, because it's the only sweeper with gutter brooms visible at all times.

Yes, for efficiency's sake as well as safety's sake . . . GET A MODEL "40."

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U. S. A.

Austin-Western

YOU COULD MAKE YOUR OWN SIGNS

BUT . . . MIRO-FLEX WILL DO IT BETTER . . .

LINE PRODUCTION MEANS UNIFORMITY

Exclusive use of Miro-Flex traffic control signs and street-name assemblies in many of the nation's largest cities and progressive small towns is *proof of the pudding!* Governing bodies like them . . . citizens like them! Made of zinc-coated bonderized steel, embossed, baked-enamel finish. Available standard or special. Write for catalog.

8-49

MANUFACTURED BY

MIRO-FLEX CO., INC.

1824 EAST SECOND STREET · WICHITA, KANSAS

WORTHINGTON-GAMON

LIQUID METERS

All Sizes All Types

Worthington-Gamon Meter Co.

Subsidiary

WORTHINGTON PUMP & MACHINERY CORP.

296 South Street Newark 5, New Jersey

Vacation WITH THE CHILDREN AT BEAUTIFUL Ellinor Village

DAYTONA BEACH, FLA.

BABYSITTERS will care for your children while you swim, visit a nightclub or take in a show.

NURSERIES for the smaller children — competently manned by trained personnel.

PLAYGROUNDS fully-equipped, convenient to all 650 villas . . . many special events for kiddies.

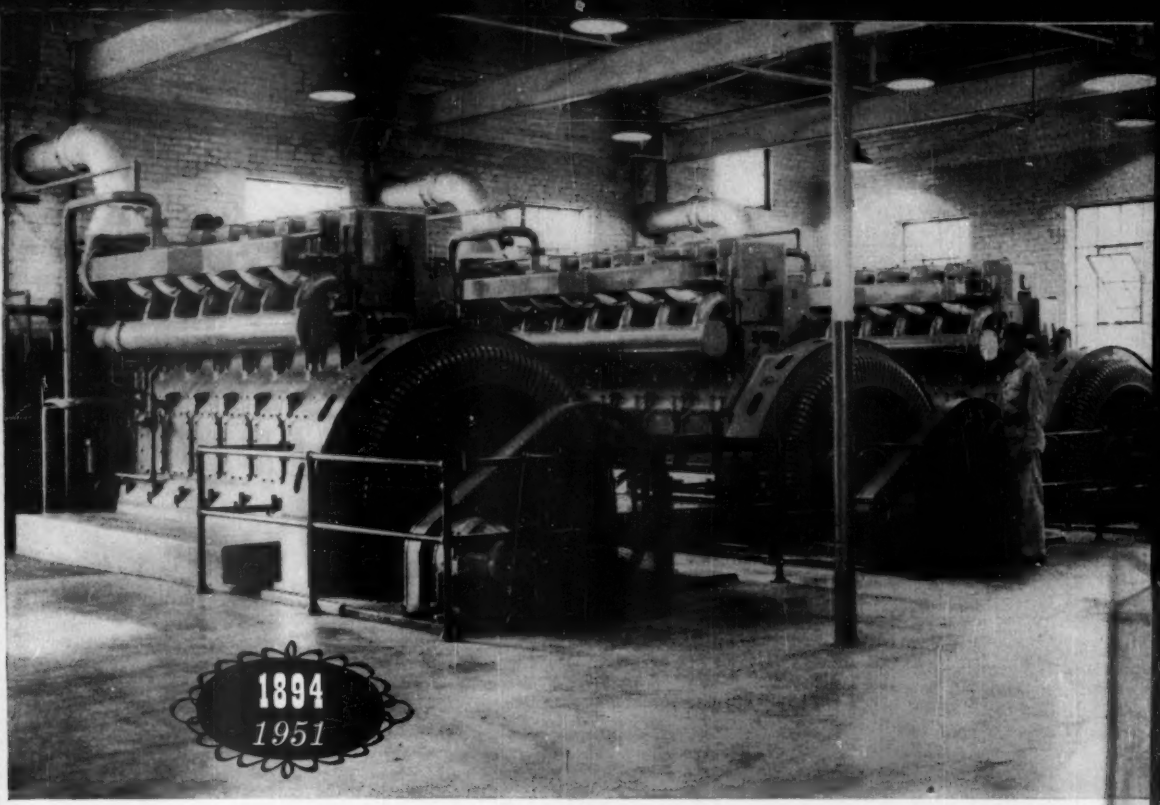
BABY BEDS, strollers, high chairs, almost any conveyance and convenience you can think of . . . better vacations for you and the little ones.

Enjoy taking your children on vacation. Ellinor Village Villas are complete deluxe homes with modern kitchens and all family furnishings. . . . Free membership in the Ormand Beach Country Club —play a championship golf course for greens fees only. Horseback riding, boating, ocean fishing . . . superb bathing on Daytona Beach. Complete resort facilities — recreations, amusements and gorgeous sightseeing. Make reservations early!

ONLY $49.50 PER WEEK

THE WORLD'S LARGEST FAMILY RESORT

DAYTONA BEACH, FLORIDA



Newton, Illinois celebrates 57 years of power progress with ALL-NORDBERG DIESEL PLANT

EARLY vintage carbon arc lights illuminated the streets of Newton, Illinois, for the first time in 1894, powered by the municipally owned plant which consisted of a single boiler and a small steam engine belted to an Edison bi-polar DC generator . . . and was operated only during periods of no moonlight, and from darkness to midnight.

Normal changes and additions were made in the ensuing years, until steam power was abandoned in February of 1950 in favor of more economical Nordberg Diesel power. The first of three 800 HP units was installed in January, 1950, just five months after being ordered, with the other two units following shortly after. All three Diesels are supercharged 4-cycle 6-cylinder units of 13" bore and 16½" stroke, direct-connected to 560 KW generators.

A comparison of generating costs at Newton show a decided advantage in favor of Diesel. While complete steam records are unavailable, the cost per KW hour averaged around 3½c during the last few years. For two months, the cost for Diesel power has averaged about one cent per KW hour, including fuel and lube oil, labor and maintenance. Projected figures indicate a future annual profit of over $70,000 with the Diesel plant.

This is one more typical example of the profit-making ability of Nordberg Diesels. Write for details on units, in sizes from 10 to 9600 HP, to meet *your* requirements.

NORDBERG MFG. CO., Milwaukee 7, Wis.

P131

BUSCH-SULZER
A DIVISION OF NORDBERG

NORDBERG
DIESEL ENGINES

Ease of maintenance. The operating thread in this hydrant of rugged, simple construction is the only part to be lubricated—and then only on occasions of regular inspection and maintenance. The thread is protected from moisture from both the system and the elements.

MATHEWS HYDRANTS

Made by R. D. Wood Company

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

MATHEWS MODERNIZED HYDRANTS OFFER THESE ADVANTAGES:
All working parts contained in quickly replaceable barrel • Stuffing box cast integral with nozzle section — positively leakproof • Head turns 360° • Replaceable head • Nozzle sections easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for strength, toughness, elasticity • A modern barrel makes an old Mathews good as new

Rockwell Disc Meters

LOOK INTO THIS SUPERIOR DESIGN!

Your own eyes will tell you that Rockwell Arctic and Tropic disc meters are better designed, better built. Every tested and proved disc meter refinement is included in their construction. They are packed with performance for greater accuracy, longer life, lower repair costs. Get the facts now. Write for an eye-opening demonstration.

ARCTIC TYPE
FOR COLD CLIMATES
Size ⅝, ¾, 1 in.
A bronze case meter with breakable frost bottom
TROPIC TYPE
FOR WARM CLIMATES
Size ⅝, ¾, 1 in.
All-bronze, split case construction
Rockwell
MANUFACTURING COMPANY
PITTSBURGH 8, PA.
Atlanta • Boston • Chicago • Columbus • Houston • Kansas City
Los Angeles • New York • Pittsburgh • San Francisco • Seattle • Tulsa

MAGAZINE IS 42 YEARS OLD!

PUBLICATION FOUNDED IN 1908 BY THE LATE GEORGE WESTINGHOUSE

ATTAINS 15,000 CIRCULATION

There are probably some old-timers in the water works industry who will remember the early days of the Water Journal. It was a plain booklet of 12 pages, published under the sponsorship of the old Pittsburgh Meter Company. Volume 1, Number 1 came out in May,

1908. It carried a feature article on the new Philadelphia High Pressure Pumping Station. The subject of universal metering, not as popular then as now, was thoroughly discussed. Later, in 1914, the death of George Westinghouse, founder of the Pittsburgh Meter Company was reported with a long list of his accomplishments.

MODERNIZED PUBLICATION

Over the years there have been many changes both in the Water Journal and its friendly sponsors. The Pittsburgh Meter Company is now Rockwell Manufacturing Company. The Water Journal is a thoroughly modernized publication of 20 pages. It is attractively printed, informatively written.

OVER 15,000 DISTRIBUTED

Over 15,000 copies of every issue are now distributed. Are you one of the 15,000 who regularly receive the Water Journal? If not, you are missing some interesting reading. It will keep you posted on the latest trends in operating practices. Thought provoking editorials by Willard F. Rockwell, Board Chairman, will keep you abreast of current events and their effect on the industry. You'll get a chuckle or two from the cartoons and joke columns.

The Water Journal is published by Rockwell Manufacturing Company as a service to the trade. We will gladly add your name to the mailing list. Write the Editor at 400 North Lexington Ave., Pittsburgh 8, Pa.

PLANS WATERWORKS

25 YEARS AHEAD

Growing City's New Pumping Station uses Allis-Chalmers Pumps

THIS IS MOLINE . . . prosperous, energetic, fast growing industrial center in Western Illinois.

Keeping right up with its industrial and residential growth, Moline has planned its waterworks program years in advance. Their new pumping station, shown on this page, is designed to handle the city's water requirements for the *next 25 years*, based on an average 1 to 2% increase in water consumption per year.

That's looking ahead!

How about your city? How does your present pumping capacity compare with future needs?

If you are planning on expansion or modernization, do as Moline and other cities are doing — take advantage of Allis-Chalmers knowledge and facilities for handling municipal pumping problems. Check with your A-C sales representative today, or write for bulletin 52B6059G, listing complete line of Allis-Chalmers centrifugal pumps.

A-3217

ALLIS-CHALMERS, 1185A SO. 70 ST.
MILWAUKEE, WIS.

THIS WAS MOLINE 100 YEARS AGO . . .

These were the days when running water was a luxury. In the absence of cast-iron piping, all water flowed through hollowed out elm logs . . . and the water that *did* flow was raw and unfiltered.

BUT LOOK AT TODAY!

Water is plentiful, pure, and efficiently handled. This view shows Moline's new pumping station, using Allis-Chalmers high service pumps. Residents of Moline are proud of the men and firms responsible for the job — Beling Engineering Consultants; M. R. Bechstrom, architect; Priester Construction Company; H. Z. Zimmer, Equipment engineer.

ALLIS-

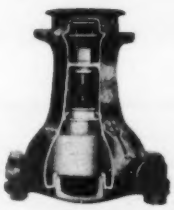
ALLIS-CHALMERS high lift pumps, shown here, take purified water from filtering basins and drive it through city's 100 miles of mains. Pump in the foreground is rated 4 M.G.D., 251 feet total head at 1800 rpm. The other three series pump units are each rated 6 M.G.D. against 266 feet total head at 1200 rpm. Gasoline engines supply standby power for two of these units in case of power failure.

CHALMERS

A-C ALLIS-CHALMERS

LOOKING FOR SOMETHING?

If it's a pile of miscellaneous repair parts for half a dozen antique models of meters you're digging into . . . brother, it's time to standardize on Tridents! Because for ALL your Trident Meters, new or old, you need carry only one set of repair parts — the newest! That's because of Trident INTERCHANGEABILITY, which means economical, simplified parts inventory — which also means less storage space and fewer, simpler records to keep track of parts. Ask your Trident representative to explain further.



New improved parts in old Trident Meter

Danvers Demonstrates

Danvers, Mass., with some 3,500 Water Meters, has a compact and efficient meter shop. An example of efficiency is its unique "baker wagon" shelving, a cabinet with ten 38" x 27" shelves, in which 3 sizes of Disc Chambers and five sizes of Discs are each stored on a separate shelf, as are also Registers and Gear Trains. Bottom caps, screws, nuts, bolts and other small parts are also readily accessible.

222

NEPTUNE METER COMPANY • 50 West 50th Street • NEW YORK 20, N. Y.
Branch Offices in Atlanta, Boston, Chicago, Dallas, Denver, Los Angeles, Louisville, North Kansas City, Portland, Ore., San Francisco.
NEPTUNE METERS, LTD., Long Branch, Ont., Canada

Council-Manager Cities 1,000 Strong

By RICHARD S. CHILDS
Chairman of the Council
National Municipal League

THE millennium arrived on December 5, 1950, when Buena Vista, Va., adopted the council-manager plan and became the thousandth city in the United States and Canada to come under that plan of municipal government. The adoption there also makes it nearly unanimous among the cities of Virginia with a population of over 5,000—the sole exception being a small area with a population of about 5,000 adjoining Petersburg called Colonial Heights.

This milestone in the progress of the council-manager plan as defined in the National Municipal League's Model Charter of 1915 comes 10 years after the 500 mark was passed through the adoption of the plan by Superior, Wis., in May 1940.

Among the thousand cities are Cincinnati, the largest, with a population of 500,510; Kansas City, Mo., 453,290; Oakland, Calif., 380,576; Rochester, N. Y., 331,252, and Toledo, Ohio, 301,358. (1950 census preliminary population figures are used.) Of communities of over 5,000, the list now includes 24%. In Maine there are over 100 city managers, most of them in very small rural communities where the manager is sometimes the sole employee, serving altogether more than half the state's population. Council-manager communities are found in every state except Indiana and Rhode Island, where political opposition is still triumphant. But many cities in those states are restive and the demand is building up.

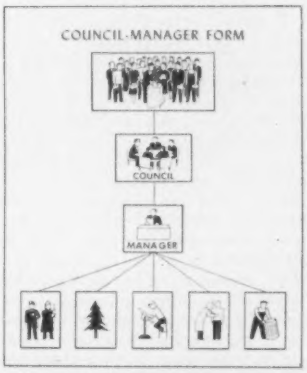
In Canada, the plan is in effect in 38 cities, including Quebec.

Development of a New Profession

Thus far has this movement come since the commission-manager plan, as it was then called, first saw the light in Sumter, S. C., in 1912.

Along with the spread of the plan has come, of course, the development of the new profession of city managership. The first city manager in Sumter was selected from out of town, and more than half the cities in choosing their first managers have gone outside their borders to find their man. One-third of the 1949 selections were managers of smaller cities. In later experience, a larger percentage of cities find managers by promotion of department heads, but the transferability of managers upward from city to city is completely established and familiar. Like a school board in seeking a professional school superintendent to head its staff, the councils can consider natives and out-of-towners and choose one of the latter without stirring up animosity or surprise. Transferability was, of course, essential if the new profession was to develop. Hence we have seen an occasional manager who has served as many as five cities, many who have served three and hundreds who are in their second city. About 40 managers have received the "Service Certificate" of the International City Managers' Association recognizing 25 years of service in one or more cities; and one manager, the durable H. L. Woolhiser of Winnetka, Ill., has served his village since 1915.

The city managers have their annual conventions, which are three-day technical conferences, to match experiences and listen to experts in administration; their monthly magazine, *Public Management*; their technical-information service and correspondence courses supplied by their central office in Chicago. The technical service is continually refreshed and corrected by the practical tests which the managers make in trying to adapt the suggested technique to their local scenes. The manager who encounters a problem in which he feels at a loss can thus, with great facility and celerity, find out what other managers have done and what experts recommend. The profession, of course, is still young and its library of technical data is probably modest as compared with what it will become. The profession offers opportunities for promotion from small cities to larger ones up to a top salary of $25,000 at present, along with rare opportunities for public service.



Pictorial chart from one of many highly successful booklets published by National Municipal League, "The Story of the Council-Manager Plan."

In many cities nowadays, the progress of the manager plan toward universal adoption is accelerated by the disposition of the transient amateurs in the offices of mayor and council to seek relief for themselves by arranging to bring into their municipal service a trained city manager. Not infrequently the proposal for change of form is thus led by the elective officers in city hall, especially in rapidly growing communities where problems of planning their physical services pile up and overwhelm the municipal administrations.

One basic feature of the council-manager plan, in addition to the ability to develop expertness in the chief executive, is the tight integration of the structure. The people elect a single council and the council manages a city through a single appointee over whom it has complete power of removal and discipline. The manager, in turn, appoints all department heads and super-

vises their work. Exceptions to this primitively simple diagram are frequent but minor. For local reasons, a city clerk may be left on the elective list or the auditor may remain elective instead of being chosen, as is preferable, by the council as its protection against the manager and his staff.

Ward election of councilmen persists for local reasons and traditions in a minority of cities under the plan, with results frequently reported to be mischievous.

In general, however, the plan has stayed remarkably true to the original concept.

Attracting First-Class Councilmen

A reason for adoption of the plan which is less readily perceived and less often talked about during campaigns for adoption is the improved conditions of service in the council and the greater attractiveness of that service, therefore, to first-class citizens — citizens of the kind who will take such a tour of duty as a public service, just as they do in serving as trustees of a hospital or as promoters of the Community Chest. The councils are purposely kept small in membership so as not to divide the power into so many bits that each bit would elude proper scrutiny at the polls. The office becomes that of member of the board of directors of a municipal corporation, an office of top importance and not diminished, as in the mayor and council plan, by subjection to veto of the mayor and lack of control over the municipal administration. Service on the council under the council-manager plan provides opportunity for determining municipal policy with freedom from detail and complete control of the personnel that is to carry out the policy.

In most cities a meeting once a week or once in two weeks, plus an occasional special excursion to the scene of some public-works project and some attention to constituents, brings the task within the time and energy which can be spared by busy and important citizens. As compared to the swiftly disappearing Galveston-Des Moines commission plan, this factor is of high importance; for elective commissioners thereunder are required to take responsibility for the daily work of technical departments, yet the city cannot usually afford adequate salaries for so many elective executives. A man of ability can earn more in private life, and the job of commissioner lapses into the hands of mediocrities, each jealously trying to advance his own department and log-rolling for appropriations. Des Moines itself has now abandoned the old plan and the local press promptly reported that the first election under the new plan brought in a high grade of elective officers never before seen in public office there—a typical experience. It is due to the high-grade councils which can thus be recruited and elected that the highest paid and most important office in the municipality, the managership, is thus commonly vested in an expert from out of town. A politically minded council would never do that, and the statistics in that matter are indisputable testimony to the frequency with which politics disappears under the new regime.

The earliest full-size city to adopt the plan was Dayton, Ohio, with a commission of five elected at large for four-year terms, three at one time and two at another, in rotation. Other elective local officers impair the clear view which such a short ballot is designed to give to the voters. But despite that circumstance, the contests are locally conspicuous; the citizens vote their own opinions on election day on the nonpartisan ballots; the local wings of the national parties do not figure or bestir themselves in the local elections; and Dayton is convinced that it has had good government through hell and high water and through 18 successive elections thus far.

Citizen Leadership Desirable

Citizen leadership is desirable under the plan, although an amazing number of the cities seems to get along without it. In about half of 500 of their elections which I investigated by questionnaires, it appeared that candidates came forward, tooted their own horns, and got elected as individuals. In the other half, citizen groups, self-organized, button-holed desirable candidates and persuaded them to run, helped them with their petitions and publicity, and disbanded after election. Incumbents who have served acceptably are commonly re-elected for as long as they can be persuaded to serve, and the elections are frequently tame affairs—sometimes almost perfunctory and occasionally incumbents are entirely unopposed.

When councils are made larger than seven to be elected at one time, the ballot becomes dangerously long. An inquiry into the four such cities which tell the voter to "vote for" nine—Dallas, Fort Worth, Long Beach (Calif.), and Sacramento—found that hardly anybody gets elected who is not either on the usual citizens' ticket or on an opposing ticket. Neither of the many tickets had anything to do with the Republican or Democrat city committees, which stay out of the picture. The experience covers 53 elections in these cities and demonstrates the undesirability of electing as many as nine at one time. If the council is to be nine or more, the terms should rotate and the election should even more imperatively be kept free from confusion with elections for other offices at the same time.

Wonder stories of performance by city managers in ousting politicians from the city hall, ousting the patronage system, developing expert service, reducing the municipal debt and the tax rate at the same time, while increasing the service and raising the pay of municipal employees, still continue to appear although the city managers have long since abandoned telling them to each other in achievement sessions; for the stories are now trite and too much alike and possibly a little unbecoming even in conventions from which outsiders are excluded. Nevertheless, it is almost universal experience for a manager replacing a political administration to be able to save his year's salary by economies and efficiencies which his experienced hand installs during his first month of service.

Editorial, Chamber of Commerce and Labor Endorsements

The editor of the Buena Vista *News* consulted his fellow editors in all the other cities in Virginia, asking for a letter reporting the local experience of each with the council-manager plan. The replies were unanimously favorable, manifesting, indeed, an enthusiasm in which newspapermen usually hate to be caught.

The Chamber of Commerce of the United States reports in an information roundup for its members similar unanimity among the 65 cities where its member chambers had witnessed 20 years of experience with the plan.

Municipal employees manifest the usual trepidation which employees in private corporations feel at the prospect of a change of boss and system, and sometimes, of course, have vested interests to protect, but after the plan has been in effect, they join in resisting its repeal. Municipal employees sometimes are successful in enlisting local labor organizations in resisting the advent of the plan, but labor organizations which have lived under the plan for 20 years or more are almost always outspoken in favor of it and, when they try, find themselves able to elect labor members to the council with greater facility. Jack Kroll, head of PAC-CIO, testifies heartily in favor of the experience which he has witnessed under the plan in Cincinnati (which Mayor Cash describes as the best-governed city in the United States), and the Pennsylvania Federation of Labor in May 1950 asked all other labor organizations to support its demand for an optional bill enabling the 47 cities of the third class to adopt the plan.

See editorial comment on page 5 of this issue.

Crews are mechanized and work is scheduled to clear 15 inches of snow in a single storm

By PHILIP L. WHITE
City Manager
Claremont, N. H.

How Claremont Handles Snow Problems

THE highway department of Claremont, N. H., stands ready to take care of snow storms varying from an inch or two to as much as 15 inches at a time. There are approximately 80 miles of streets and highways that must be plowed. All snow is removed regularly from about 2 miles of streets in the business district. This amount includes some narrow streets where snow removal is made because it is within the business district and must be removed in order to maintain two-way traffic. During a season when there is a large snowfall, such as the winter of 1947-48, snow-removal work is also undertaken on approximately 8 or 10 miles of additional streets.

Truck-Mounted Plows

For plowing work, five truck-mounted plows are used. They are an International KBR-10 with four-wheel drive mounting a one-way plow together with a wing; an Oshkosh W-1700 mounting a one-way plow and wing; a GMC Model HCV471 mounting a one-way plow; a Chevrolet 2-ton truck mounting a one-way plow, and an International KBS-7 mounting a one-way plow. In addition to these trucks, we regularly use an Adams motor grader which mounts both plow and wing, an International TD9 bulldozer, and a Caterpillar 35 tractor. For sidewalk plowing the city uses a Cletrac EG42, and an International 1-A tractor. For snow-removal work, a SnoGo LMU mounted on an International K7 chassis is used. We have, in addition, a Barber-Greene 38D loader which is sometimes used with the SnoGo at times of extremely heavy snowfall. The trucks used for hauling snow include such highway department trucks as may be available at the time, together with trucks from the water, sewer, and park departments. It is generally necessary to hire several trucks from private owners for a short period of time, since snow-removal work is generally started before plowing operations are completed.

Procedure varies in accordance with the type of snow storm, but as a general rule, application of salt is made soon after the storm starts. For the past two seasons we have used a Tarco Scotchman salt spreader. It has been our experience that this equipment permits the coverage of the streets in a more thorough manner and in a shorter space of time than was possible by other methods. A further advantage is that the consumption of salt with the spreader is approximately half as much as with other methods of application.

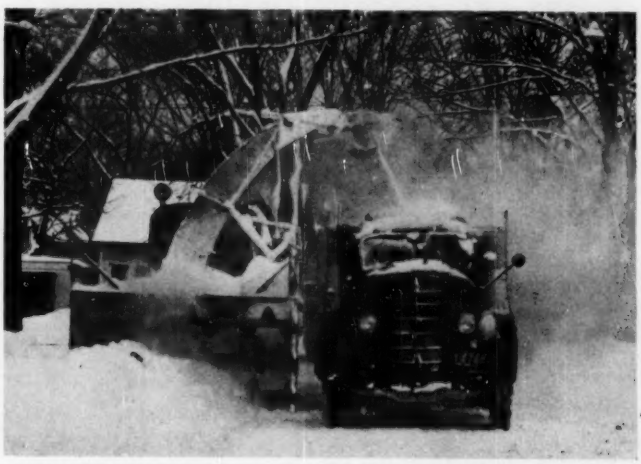
The use of salt has increased tremendously in the past two seasons, and we now average approximately 125 tons per season. Following the application of salt, which tends to prevent the snow from sticking to the pavement, plowing operations are started when the snow has reached the approximate depth of 3 inches. Plowing then continues during the duration of the storm. Each piece of equipment is assigned to a particular territory, with the tractor being used on narrow streets and on rural roads that are not hard-surfaced. No two storms are, of course, exactly alike. In general, if the snowfall has ceased or considerably diminished by midnight, snow-loading operations are undertaken so that the business section will be cleared of snow prior to the opening of stores.

During sleet storms or following light snowfalls, all hard-surfaced roads are treated with salt. Sand is applied on rural roads that are not hard-surfaced, and under certain conditions on other streets where there is an accumulation of ice or hard-packed snow that has not reacted to treatment with salt because of extremely low temperatures.

Highway-department employees are generally summoned by the superintendent by telephone. Snow loaded from the streets is disposed of at several different points where high banks are available for dumping purposes. The city is fortunate in having several such locations available a comparatively short distance from the point where the snow is loaded.

Costs

The cost of snow removal during the fiscal year 1948, which was an unusually severe year, amounted to $21,957. Snow-removal costs in 1949 amounted to $13,680.94. An estimated average annual cost would be approximately $17,000. These figures in each instance include labor costs of operation of trucks, hire of trucks, purchase of salt and application of salt, and stockpiling of sand and application of sand, together with all other related costs pertaining to snow plowing and removal.



Claremont's SnoGo eats into a windrow of snow and loads it into a truck.

First-Class Care of SECONDARY Streets

Skillful grading, attention to drainage, asphalt surfacing adds to the service and usefulness of Coraopolis' streets and alleys

By EDWARD FOSTER
Institute of Local Government, University of Pittsburgh
and
ROBERT E. LUNN
Superintendent of Public Works, Coraopolis, Pa.

SINCE 1946 the Borough of Coraopolis, a community of approximately 11,000 people, has undertaken the task of annually surfacing its alleys and secondary streets. The program has been under the direction of Robert E. Lunn. The cost of surfacing the 9,000 square yards of alleys and secondary streets this year was $8,928. An additional $500 was expended to reclaim old asphalt-surfaced

This secondary road, which carries local traffic, will require little or no maintenance work for three years.

Before resurfacing, this alley was wide enough for only one traffic lane. Now it can handle two comfortably.

Though four years old and located where soil conditions are not good, this road continues to give good service.

secondary roadways. All equipment and labor, with the exception of the distributor, are city-owned.

A number of the alleys in the municipality, despite widths of 20 feet, provided trafficways of only 9 feet. The presence of unsightly and unsanitary drainage ditches, on each side of the roadway, made impossible the maximum use of the alleys for ordinary vehicular travel. By reshaping these alleys, the single-lane alleys were transformed into two-lane secondary roadways with overall widths of 18 to 20 feet.

Preparations for Paving

No great problem arose in preparing the alleys for paving since the existing foundations were fairly substantial. A Caterpillar Auto Patrol No. 10 road grader repeatedly scarified the alley surface to a depth of approximately 8 inches in order to assure a thorough mixing of the dirt base, and the gutters along each side of the roadways were filled with slag measuring ¼ inch or less in size, or known as B-1. To compensate for the loss of the roadside gutters, the alleys were shaped into a concave pattern, thus providing adequate surface drainage without reducing the width of either lane. The size of the area to be drained determined the depth of the center line of each roadway. In most cases, a center depth of 8 inches proved satisfactory in drawing off excess water.

Upon completion of the shaping process, a coat of B-1 aggregate heavy enough to cover the entire surface of the alley was applied. Next, the surface was broom-dragged several times to assure a smooth and even finish, and to prevent the subsequent asphalt application from bunching or buckling as a result of an inadequate aggregate coverage of the unpaved foundation. The broom-drags, used in the project, were made from discarded street brooms bolted to a Z-shaped frame and were attached to the rear of a pick-up truck.

The initial application of hot asphalt was distributed by the mechanical spreader designed by Carnegie Tar and Asphalt Company. It is power-take-off driven and has low-pressure burner heaters and all auxiliary equipment and gauges for accurate application control of the liquid asphalt material of a C-1 or C-2 grade, distributed at the rate of ½ gallon per square yard. Another coating of aggregate was applied in sufficient quantity to cover the asphalt, following which, the area was again broom-dragged in order to retain the smooth facing. A second application of hot C-1 or C-2 asphalt was distributed, at the rate of ½ gallon per square yard, over the aggregate. After a light sanding, a 6- to 9-ton Buffalo Springfield water tandem roller continuously rolled the roadway until the surface was smooth and compact. Upon completion of the project, the asphalt-treated roadways were closed to traffic for a period of 48 hours.

The inconvenience to residents and motorists was negligible and the subsequent benefits more than compensated for the two-day period in which the alleys and secondary streets were not in use. An asphalt surface of this type will have long life, and costs little as it requires a minimum of maintenance for at least three years. In the fourth year, it is deemed advisable to reseal the surface with an application of hot asphalt distributed at the rate of 3/10 of a gallon per square yard.

Old asphalt-surfaced alleys and secondary streets in the borough also were reclaimed and made fit for maximum usage. The existing surfaces were scarified to a depth of 5 inches and reshaped for drainage purposes. A Seaman Pulva-Mixer traveled over the old surface at least three times to assure a thorough mixing of the asphalt and soil. After reshaping, a mechanical spreader distributed a coating of C-1 asphalt at the rate of 3/10 of a gallon per square yard. The roadway was thoroughly mixed again to furnish a satisfactory base for the subsequent aggregate application. After applying the aggregate to a uniform depth of about ½ inch, broom-drags were used to provide the smooth finish necessary for safe and comfortable vehicular travel. An overlay of C-1 asphalt applied at the rate of ½ gallon per square yard, lightly sanded and rolled well, completed the process. Roadways thus surfaced will have a depth of 5 to 6 inches of penetrated asphalt and will require little attention for a number of years.

The Borough of Coraopolis has enjoyed considerable success with asphalt surfaces, and has found them to be much less expensive than dirt-street maintenance. Asphalt surfaces have provided waterproof, economical, smooth, non-skid, yet rugged roads for the city.

Cities Plan Record Bond Sales

UNLESS controls become tighter and until the effects of material allocations, higher prices, and inflationary aspects are more clearly apparent, cities are going to market capital-improvement bonds in about the same record-breaking volume this year as during each of the past three years.

This was the conclusion of the Municipal Finance Officers Association after a survey of bond-sale plans for 338 U. S. local governments and 55 Canadian municipalities. All levels of government—states, counties, cities, as well as special districts and authorities—were represented in the study.

"The Korean war and increased defense activity have made the cities more hesitant about selling bonds," the Association observed, "and none appear to have committed themselves to a definite, inviolable program. But, at the moment, at least, they are following the same public-works policies that they followed before the present crisis."

Of the U. S. governmental units surveyed by the Association, 168 planned to be in the bond market this year with proposals totaling about $658,000,000. About 34% of these bonds had definitely been authorized to be issued and few of the cities replying to the Association's questionnaire had "proposed" bond issues turned down by the electorate. Predominantly, bonds sold next year will be of the general-obligation type, as has been true in the past, although revenue bonds will also be used extensively.

Most popular single item for which cities propose to sell bonds is for utilities—water, sewer, gas, and electric. Nearly 38% of the bonds proposed to be sold in 1951 will go for essential utilities. Seattle voters, however, turned down a $28,500,000 bond plan for purchase of Puget Sound Power and Light Company's electric facilities.

Schools ranked high among needed buildings, with 13.5% of the municipal obligations to be marketed next year slated to be used for their construction. Most frequently proposed municipal construction, other than schools, involved hospitals, fire and police stations, and incinerators.

Manual Expounds Latest Assessing Methods

A 150-PAGE handbook for Connecticut assessors has been published by the Institute of Public Service, University of Connecticut, which contains the latest information on assessing procedures and taxation for municipal officials. One copy of the book has been sent to each of the assessing offices and boards of review in Connecticut's 169 towns and cities.

The Manual, first of its kind in Connecticut, was proposed by City Assessor Aldro Jenks of Waterbury, shortly after he was elected president of the Connecticut Association of Assessing Officers in November 1949. Its contents include charts, record forms, valuation tables, and a thorough Index.

The publication was prepared in about 10 months by the Institute and by Connecticut experts in various fields of assessing through a committee headed by Herbert Shay, Assessor of Fairfield, Conn., with editing help from Mr. Jenks.

Joseph M. Loughlin, Institute Director, points out in the foreword of the book that it is a training guide for assessors, a reference book on advanced assessment practices, and a basis for uniform standards.

Creating a Garbage-Free Community

Through Civic Cooperation

By ARTHUR PICKETT*

INCREASING acceptance of the garbage grinder by housewives, restaurant owners, and others engaged in the handling or processing of food is rapidly reducing the number of garbage pails on the back porches and in the service yards and alleys of communities throughout the nation. In the cities and communities of the Los Angeles metropolitan area, for example, available data indicate that more than 10,000 units are being installed each month.

In almost all new housing developments under construction in this area, garbage grinders are provided in every kitchen. Developers report that it is virtually impossible to sell a new home or to rent a new apartment unless a garbage grinder is provided. One development comprising 17,000 new homes is featuring the units in its advertising with remarkable success.

Commercial Grinders Booming

Architects here have been quick to realize the advantages of garbage grinders in the design of restaurants being constructed to serve the expanding population of the county. Builders of these restaurants are realizing major savings in cost of construction due to the elimination of storage rooms for garbage cans, insanitary and expensive grease interceptors, and other facilities which are unnecessary when garbage is eliminated.

Reduction in costs of restaurant operation are even more important. The expense and disagreeable labor incident to handling, storage, and cleaning of garbage pails, and the cost of operation of the garbage collection trucks, are eliminated.

Food processors of every description are installing the grinders wherever the increased load of garbage can be handled in the sewerage system. In one plant, from 2 to 4 tons per day of waste cabbage leaves and stalks are ground and flushed into the sewer, 300 days per year. In another plant, from 6 to 8 tons per day of apricot and peach pits are similarly handled each day during the packing season. Other plants grind citrus and packing-house wastes for disposal to the public sewer system.

As a result of all these factors, the installation of garbage grinders is spreading in a sort of chain reaction throughout the Metropolitan Area of Los Angeles County, and it seems reasonable to assume that within 10 years, garbage grinders will have replaced the garbage pails in most communities of the area to about the same extent that modern plumbing has replaced the outdoor toilet.

Creating a Garbage-Free Community

The possibility that garbage trucks can be eliminated from city streets and disposal areas creates a new concept of community health and sanitation, and an immediate desire to accomplish this objective as quickly and as effectively as possible.

In many areas, public officials may accomplish this objective if they proceed in accordance with a definite plan, carefully developed to meet the particular problems of their community. To be effective, such a plan must include the following basic steps:

1. Compilation of technical data by public officials
2. Appointment of a civic coordinating committee on which all interested civic groups are represented
3. Enactment of changes in ordinances and regulations
4. Budget adjustments and other financial provisions for construction of needed community facilities
5. Administrative changes required to operate and enforce new ordinances and regulations

Technical data should include possible effect on the existing garbage-collection facilities, municipal dumps or incinerators, and the community sewerage system.

Material reduction in cost of garbage collection and disposal facilities will, of course, be realized. Substantial changes may be anticipated in the city sewerage system. Greatest changes will be observed in total solids and in the bio-chemical oxygen demand of the city sewage, which may increase by as much as 30 to 50%. In general, these increases will not affect the sewer collection system, but will require changes at the treatment plant and disposal works. Where complete treatment is required, the cost of such changes may be substantial. Where the digested sewage sludge is sold for fertilizer, such cost may be partially offset by increased sales of fertilizer.

When technical data have been compiled, representatives of civic groups should be asked to form a coordinating committee to develop community cooperation and endorsement of the plan. Subcommittees should be formed to consider various phases of the plan, to expand and revise the technical data supplied by public officials, and to coordinate features of the plan for the benefit of all affected groups.

Ordinance or Code to Require Installation

The effective step in a community plan is to establish an ordinance or code requiring the installation of electric food-waste grinders in each residence and in each establishment where food is served, prepared, or handled.

To secure community endorsement, such ordinances should be carefully reviewed by the various subcommittees. Cooperation of business groups, including master plumbers' and electrical-contractor associations, building contractors' and architectural groups, appliance-dealer associations, and water and power utilities is essential. Review of proposed changes in ordinances and regulations by representatives of these groups will protect home and restaurant owners from the usual efforts to sell substandard materials and equipment, and will insure installation in accordance with recognized standards of quality. Extreme care should be taken to restrict installation to approved types of equipment and materials, to specify details relative to installation, and to require installation by licensed plumbers and electricians subject to official inspection and approval.

A subcommittee composed of representatives of banking and lending institutions should be asked to formulate a simple procedure for financing of installations by individual property owners and businessmen. Agencies of the Federal Government with their loan-guarantee sections should participate in this phase of the plan.

Representatives of civic groups and women's organizations should study the factors affecting public health and sanitation, community beautification, and

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related subjects and to expand upon data compiled by public health officials.

When the coordinating committee and various subcommittees have completed their work, a list of detailed questions and answers relative to all phases of the plan should be formulated. Examples should be developed to illustrate the effect which sale and installation of 100 units would have on the business of merchants, plumbers, electricians, financial institutions, and others who may be directly or indirectly affected by the program. Presentation of these facts by the civic committee should assure cooperation in the program. This presentation should be made at an appropriate civic gathering. Release of the plan to newspapers, radio and television stations, and the general public should promote discussion and arouse interest.

Full opportunity should be given for public meetings to discuss the program in detail so as to insure its general acceptance. When public cooperation and endorsement are obtained, actual accomplishment of the program becomes simply a matter of revising existing regulations and ordinances and of providing needed changes in sewerage facilities, and the setting up of personnel required to administer and enforce the new regulations.

Declaration of Intentions

Following presentation of the plan by the civic coordinating committee, the Community Council or other governing body having jurisdiction should pass a declaration of intention, which should be brief and simple in its language. This declaration should outline the over-all plan and set up a time schedule for its accomplishment.

If changes in the sewer system are required, installation of grinders may have to be restricted until needed additions are completed. In other cases, installations of units may be restricted in the beginning to new homes and restaurants to allow plumbers and electricians time in which to meet their schedules. In all cases, compulsory installations in existing homes should be based upon a well-conceived plan in order to avoid delays and hardship. Where there is a separate charge for refuse-disposal service, the bill should be reduced following the installation of garbage grinders by individual owners.

When time limits for completion of all installations in a district or area have expired, bills for refuse-collection service should be reduced, and substantial charges should be made for garbage collection from homes which have failed to comply with ordinance requirements. In this manner, individual property owners who fail to comply with ordinance requirements for any reason may be persuaded to comply without the necessity of court action.

If the program is to succeed, care must be taken to see that ample provisions are made in the community budget for administration and enforcement of the program. In all probability, many of the employees eliminated from the garbage collection and disposal service can be transferred to other work. Others will be retired from service, and their positions will not be refilled. Savings in capital outlay for purchase of collection trucks and similar equipment can be used to finance construction of changes of the sewage-disposal plant. In some cases, taxes allocated to garbage collection may have to be transferred temporarily to finance the increased cost of operation of sewage facilities.

The community plan can bring permanent relief to harrassed public officials seeking a solution to the garbage-disposal problem. The businessmen will benefit by an increased volume of business affecting almost every worker of the community. The individual property owner will benefit by freedom from nuisance, menace to public health and safety, and a higher standard of cleanliness and beautification in the community.

Metropolitan Planning Council Formed For San Francisco East Bay Area

AN East Bay (San Francisco) Metropolitan Planning Council has been organized by Planning Commissioners of nine cities. The purpose of the new organization is to provide an unofficial forum for the discussion of plans and planning needs in the Metropolitan East Bay; to stimulate cooperation in and coordination of city, county and regional plans; and to promote understanding among the Planning Commissions of the East Bay communities.

Planning Commissioners and technicians from Albany, Alameda, Berkeley, El Cerrito, Hayward, Oakland, Richmond, San Leandro and San Pablo set up the new Council. In addition, technical representatives of Alameda County and Contra Costa County were present at the meeting. Although the counties did not take part, their Planning Commissions will be invited to join the new organization. No limitation was placed on the area to be included in the Council. All interested cities and counties will be welcome to join.

Emery Stone, President of the Berkeley Planning Commission, presided at the meeting. Planning Commissioner John Reardon, of San Leandro, proposed the formation of the new organization. Lawrence Livingston, Jr., Assistant City Planning Engineer of Oakland, described past efforts to organize metropolitan planning agencies in the area.

Dr. Eric Peterson of El Cerrito was unanimously elected Acting President. Two Planning Commissioners from each city and county will be appointed delegates to the Planning Council. All cities and counties will have equal representation in determining the policies of the group.

The East Bay Metropolitan Planning Council is an unofficial body without any actual powers. However, it will be in a position to coordinate the plans of the member cities and counties, formulate area-wide plans, and make recommendations to the various local Planning Commissions. It is anticipated that before taking a position on a policy matter each Commissioner will refer it back to his local Planning Commission for an expression of its opinion.

A New Form of State Aid for Local Planning Urged in New Jersey

A PLAN for putting a wealth of basic data and a technical planning staff at the disposal of all the municipalities and counties in New Jersey for a nominal membership fee was presented by the New Jersey Federation of Official Planning Boards and endorsed on December 1 by the New Jersey State League of Municipalities, at the League's annual meeting in Atlantic City.

Under this proposal the state would be divided into regions in which each community so desiring would pay a yearly membership fee entitling it to the general and basic planning services. Specialized studies and surveys (traffic studies, zoning revisions, land use analyses, etc.) would be done on a pro rata cost basis.

The state would subsidize the cost of establishing and maintaining these regional staffs until such time as they might become self-sustaining.

Membership would be completely voluntary, and acceptance or rejection of recommendations by regional staffs would be absolutely within the discretion of the member.

The League's resolution approving this proposal of the Federation pointed out that the State of New Jersey has, to a great extent, grown and developed with no formal planning, and that the cost of local planning without state aid would in many cases be prohibitive.

Operation and Maintenance of

Sewer Systems

TO MAINTAIN a sewer system properly, the first essential is a master map, together with larger scale sectional maps of the system. These should show:

- direction of flow
- exact manhole locations
- sewer sizes and slopes
- house connections
- location of other utility services with relation to the sewer

The next requirement is a permanent record of maintenance and inspection. This should include dates of inspection, location of maintenance work, conditions found, equipment used, and costs.

Routine inspection of the entire system is most desirable to prevent trouble. Most general inspection practice recommends the following schedule:

- sewers on flat grades or previously troubled by roots—every three months
- sewers with which no difficulty has been experienced—once or twice yearly
- main intercepting sewers—one to four times per month
- inverted siphons—one to four times per month
- storm-water overflows—during and following heavy rains

The following items should be considered in making a general inspection:

1. Check manholes for gasoline odors or presence of oil slick on sewage surface. If signs are found, inspect each upstream manhole until the source is located.

2. Check for unusual odors, such as illuminating gas. Use an explosimeter in some cases.

3. Check manholes for sand, mud, and grit. Their presence may indicate broken or loose sewer joints or sewer pipe.

4. Check manholes for sluggish flow, septic sewage, or accumulations of sewage solids. These may indicate obstructions in the sewer, poor sewer grades, or a need for periodic flushing.

5. Check at manholes for excessively diluted sewage. This may indicate groundwater infiltration or storm-water, roof, or clear-water connections.

6. Check manhole masonry for repairs, particularly above the frost line. Check manhole steps to see if they are sound; check frame mounting on masonry; check seating of manhole covers. The grade of the cover may be raised, if necessary, to stop excessive surface water or earth from entering the sewer system.

Where flushing or ball-cleaning will not clear the sewer of obstructions, cable-operated buckets such as this Champion sewer cleaner work very well.

The most common causes of sewer clogging are:

- roots
- accumulation of grease
- grit

Roots generally enter at faulty joints. Growth usually begins from a single leader root which has penetrated the joint, and may continue inside the sewer until the branches from the leader fill the pipe.

Grease is usually discharged into the sewer with warm water. As it cools, the grease solidifies and sticks to the sewer walls, or develops into a ball around one of the particles carried in the flow.

Grit, such as cinders, ashes, sand, or mud, may cause clogging, particularly in sewers on flat grades. This may be expected to be a problem on combined sewers where these materials are washed in with the surface drainage; they may also enter sanitary sewers through basement drains, through broken joints in the sewers, or from other sources, such as automobile wash racks.

Sewer Cleaning

Flushing will remove minor deposits of material. Lines that are laid on flat grades and get clogged with grit or grease should be flushed frequently, perhaps as often as once every several weeks or every month. On lines with steeper grades it may not be necessary to flush as often, perhaps only yearly. Where odors are present at manholes, flushing should be frequent, particularly during the dry-weather periods.

The simplest method is to insert a fire hose into the sewer to scour out the deposits. This method, however, is not particularly effective and wastes large quantities of water.

Another simple method consists of inflating a light rubber ball such as a beach ball or a volley-ball bladder to

fit snugly in the sewer, and placing it in a canvas or burlap bag with a rope attached. The ball is then placed in the sewer and the rope held until sewage backs up in the manhole. The ball is then allowed to move to the next manhole. When the ball hits an obstruction in the sewer, the pressure forces it against the top of the sewer, causing a jet between the bottom of the sewer and the ball. This washes the deposit out. Where sewage flow is low, it may be necessary to add water to the manhole.

As a development along this line, the Sidu Company of Long Beach, Calif., is now marketing a sturdy rubber ball, built so that a line can be secured to it for control as it passes through the sewer.

A number of types of equipment is available for removing roots from sewers. Flexible sewer rods and cutters have been popular for the smaller-diameter sewers. These rods are pushed and turned at the surface, and the hazard of having to work in a manhole is thus eliminated.

Another method of root removal consists of adding copper sulphate to the sewer. This should be considered a root-prevention method. It cannot cope with severe obstructions, since usually three weeks are needed to kill the roots. It also does not work too well on the larger sewers. For laterals and branch sewers, however, two or three pounds of copper sulphate placed in the manhole above the root growth about once a year will do the work.

When flushing or ball-cleaning will not clear the sewer, it may be necessary to use a scoop or scraper pulled through the sewer by cable and winch, or a turbine-type cleaning tool.

Groundwater Infiltration

Most excessive groundwater infiltration results from faulty sewer construction. It has been traced to openings between the manhole frame and cover; ventilation holes and openings for handles on manhole covers, especially if they are located in the gutters; openings between the sewer pipe and manhole brickwork, incorrect plastering of manhole brickwork, frost cracks in the crowns of manholes; poor pipe joints; diversion of natural underground watercourses into sewers; improper sealing of plugs placed in the ends of laterals or in Y branches; breaking of joints by dislocation of the bearing surface. One of the most common causes of excessive flow in sanitary sewers is the discharge of roof drains and footing drains or connection of street-surface water drains to the sewer. These latter conditions can only be reduced by rigid enforcement of ordinances which prohibit such practices, together with public education and vigilance on the part of the superintendent of sewers.

The pumping costs are often a major operating expense. An efficient inspection and maintenance program which follows the manufacturer's recommendations will be helpful in holding these costs to a minimum.

Another important part of the pumping station is the wet well. The walls and bottom of the well should be flushed daily to remove solids and grit which have settled out. A 1½-inch hose and nozzle are usually satisfactory. However, it may be necessary to remove the grit periodically by bucket and shovel. If grease accumulates in the float tubes, they also should be flushed daily and scraped out whenever necessary. Bar or basket screen at pumping stations should be cleaned at least once daily.

Other maintenance items at pumping stations consist of removing water accumulations daily from the dry well by operating the suction-valve of the sewage pump (if you do not have an automatic sump pump), plus the normal housekeeping measures of keeping the station clean (both internally and externally); all equipment and materials that require protection against moisture and fumes should be painted with the proper type of paint.

It is much easier, and also less expensive, to set up an efficient inspection and maintenance schedule for your sewer system than to cross your fingers and hope you won't have trouble. The crossed-finger system does not prevent trouble—it merely saves it for a time when it is most inconvenient for you to correct it.

For information about specific sewer-cleaning equipment, write to the following firms:

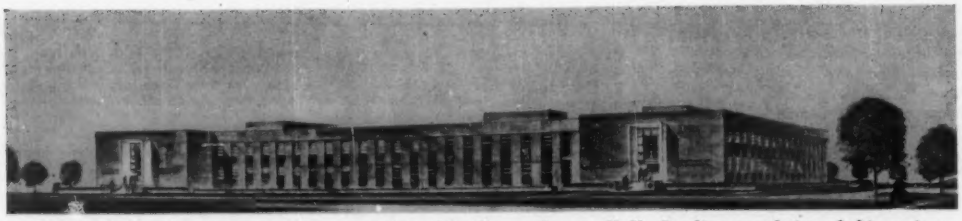
Champion Corp., 4716 Sheffield, Ave., Hammond, Ind.
Expanding Sewer Machine Co., 108 E. Walnut St., Nappanee, Ind.
J. C. Fitzgerald, P. O. Box 289, Coral Gables, Fla.
Flexible Sewer Rod Equipment Co., 9059 Venice Blvd., Los Angeles 34, Calif.
Roto-Rooter Corp., 301 University Ave., Des Moines, Iowa
The Sidu Co., Box 3537, Long Beach, Calif.
W. H. Stewart, Inc., P. O. Box 767, Syracuse, N. Y.
Turbine Sewer Machine Co., 5210 W. State St., Milwaukee, Wis.

For a booklet on how to use copper sulphate for root control, write Phelps Dodge Refining Corp., 40 Wall St., New York, N. Y.

THE EDITORS

THIS discussion was prepared by the Illinois Department of Health, Springfield, and sent to sewage-plant operators in that state as part of a loose-leaf manual that the Department is developing. It was distributed to plant operators in conjunction with The Digester, *a mimeographed publication prepared by the Department. C. W. Klassen is Chief Sanitary Engineer.*

For other persistent stoppages, the Flexible Sewer Rod has proved popular.



Architect's sketch of a new government center planned for Nassau County, N. Y. Pending completion of this project, several older county buildings were remodeled to serve temporary office-space needs of this fast-growing area.

Low-Cost Improvements Can Revitalize Municipal Buildings

NEW building-construction volume is expected to drop shortly because of the diversion of building materials to national defense. This outlook, together with the reluctance of city heads and voters to make appropriations for new structures, emphasizes the current need for the improvement of existing municipal and public buildings at the lowest possible cost.

Expanded facilities are imperative in many cases to meet the constantly growing requirements of taxpayers. Milwaukee, Wis., and Lisbon, Ohio, are building new city-hall annexes to meet such increased demands.

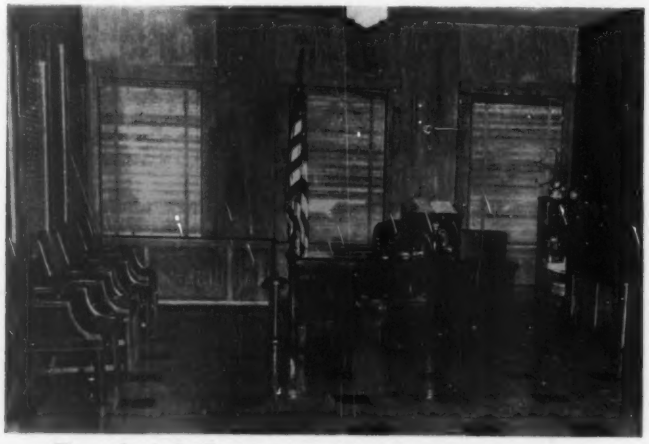
Some officials, needing space but lacking the necessary authority to put up adequate structures, have converted old buildings into presentable quarters; in Teaneck, N. J., the city manager restored a condemned school building and made it an attractive community center.

One of the most elaborate new government centers on the county level is being planned on several acres of the Mineola Fair Grounds in Long Island for Nassau County. Contractors' bids were received last fall for the project, which is expected to cost about $2,500,000. The project will include a central administration building flanker by several smaller buildings. In the meantime, until this new project is completed, several remodeling projects have met the county's needs for government office space.

Nassau County authorities put through a quickly adopted building program about five years ago. (The population has grown from 406,000 in 1940 to 665,000 in 1950.) As the courthouse building erected at that time was still not adequate to house all of the county's offices, the old building has been remodeled and the surplus bureaus housed there. A similar step was taken at Pittsburg, Kans., where an existing building was remodeled to be used as a courthouse.

Many municipalities lacking funds to erect new headquarters can make their facilities more nearly adequate by remodeling and modernizing with paint, new floor covering, fixtures, and furniture, and adopting the latest building materials and techniques. By using their own maintenance crews of municipal employees in many instances, they can effect considerable savings in labor costs.

A case in point is Long Beach, on Long Island. This municipality, with a normal population of about 15,000, which is considerably swelled during the summer, set out to improve the shabby appearance of those city-hall offices visited by taxpayers. The 25-year-old red brick municipal building had become neglected through years of use. The interior was dingy, the flooring cracked and grooved; in many of the offices ceilings and walls were cracked and peeled.



The modernized office of the City Manager of Long Beach, N. Y.

Remodeled Office

The City Manager, upon assuming office, began to improve the interior. He started with his own suite of offices, since it is the one most frequently visited by out-of-towners, who should be favorably impressed. The dreary, dilapidated office, with its old, corrugated floors covered by worn linoleum, and furnished with shabby wicker furniture, was redecorated and refurnished. Partitions between two small, cramped offices were removed and the area converted into one spacious office, with plenty of sunlight and closet space.

The old walls, painted a dingy brown, were paneled in new soft walnut wood with matching window frames. Radiators were recessed under grilles of window-sill height. New floor cover-

ing was chosen carefully. Kentile asphalt tile was selected in shades of marbleized gray, inset with occasional squares of red-brown, to harmonize with the walls. Red leather upholstery on furniture added a bright note of contrast. The result is an impressive and dignified room that draws favorable comments from visitors, citizens, and taxpayers, and which is now used by the governing council for its sessions.

In the adjoining reception room, the old walls were recovered with wallpaper simulating knotty pine. Here the asphalt-tile flooring was of a lighter shade of marbleized brownish-gray to afford a pleasing contrast with the floor of the larger office.

The walls of the City Clerk's office were painted green, and the ceiling painted white. Further improvements are planned for other rooms.

Architecture and Color

A well-rounded improvement program utilizes both architectural skill and color technique. These can be used to minimize the bad features of a building and to point up the good ones. Building-design correction can overcome such structural faults as obstructions in corridors and inadequate distribution of exits and stairways.

Color can make small interiors appear larger. Even the exterior of a small township building can be made to appear larger by clever use of paint. A good rule-of-thumb is to use light grays, beiges, creams, and white or off-white on buildings in the more formal styles of architecture. Brighter stronger colors may be applied to those in more informal styles.

Remodeling of older municipal buildings can enhance their appearance, increase the working efficiency of municipal employees, and add to the convenience of visitors and taxpayers without entailing major structural changes. Outdated, ornate trim on the facade can be removed, and color emphasis can be put on long, horizontal, architectural lines to bring the exterior design more closely in keeping with today's design preferences. Structural glass semi-partitions used to separate small office-cubicles will admit light, and do away with the cell-like feeling without destroying privacy. Flush-type doors, simple modern lighting fixtures, and large-paned modern window-sashes all contribute to a new look. Acoustical treatment of vital areas such as the council chamber will add new comfort to the building. Extending the modernization program into the public rest and reception rooms will be an especially welcome improvement. Heating and cooling equipment, automatic-control devices, and fire-warning signals should all come in for consideration in the modernization program.

Memphis Wins "Cleanest Town" Contest

Memphis receives judges' decision as America's "Cleanest Town' in 1950 National Cleanest Town Contest, sponsored by National Clean Up—Paint Up—Fix Up Bureau. Examining Memphis scrapbook exhibit are (left to right): F. Stuart Fitzpatrick, Manager, Construction and Civic Development Department, Chamber of Commerce of the United States, representing President Otto A. Seyferth; United States Secretary of Commerce Charles Sawyer; General Joseph F. Battley, President of the Bureau, and Vernon D. Northrop, Administrative Assistant Secretary of Interior, representing Secretary Oscar Chapman.

MEMPHIS, Tenn., was named winner of the National Cleanest Town Contest for cities that conducted Clean Up—Paint Up—Fix Up programs in 1950. A record number of 3,000 cities and towns are conducting these community-improvement projects sponsored by the National Clean Up—Paint Up—Fix Up Bureau located in Washington, D. C.

In winning the Ernest T. Trigg National Award, Memphis repeated its achievement of 1948. Memphis also captured the first-place trophy for cities with a population of 100,000 to 500,000 for the third successive year. Louisville, Ky., was second to Memphis this year, as it was in 1948 and 1949.

General Joseph F. Battley, President of the National Clan Up—Paint Up—Fix Up Bureau, announced Cleanest Town Contest awards today following their selection by a panel of distinguished judges. Judges were Secretary of the Interior Oscar Chapman, Secretary of Commerce Charles Sawyer, and President Otto A. Seyferth of the Chamber of Commerce of the United States. Memphis Public Service Commissioner Robert S. Fredericks accepted the trophy on behalf of Mayor Watkins Overton of Memphis.

Winners of four other population classes were: Cities over 500,00, Philadelphia, first; Pittsburgh, second; 25,000 to 100,000—Hagerstown, Md., first; Little Rock, Ark., second; 5,000 to 25,000—Iron Mountain-Kingsford, Mich., first; Kendallville, Ind., second; under 5,000—Richlands, Va., first; Spring Valley, Wis., second.

Certificates of Achievement were awarded to 28 cities and towns in 19 states, as follows: Birmingham and Florence, Ala.; Pine Bluff, Ark.; Monterey Park, Calif.; Atlanta, Ga.; Mt. Carmel and Rantoul, Ill.; Gary and Hammond, Ind.; Baltimore, Md.; Boston, Mass.; Hamtramck, Mich.; Kansas City and St. Louis, Mo.; Milltown, N. J.; Buffalo, Cheektowaga, and Endicott, N. Y.; Gastonia, N. C.; Valley City, N. Dak.; Cincinnati, Dayton, and Sebring, Ohio; West Chester, Pa.; Hartsville, S. C.; Crossville and Nashville, Tenn., and Houston, Texas.

New Officers, New Jersey League of Municipalities

JOHN J. McGOWAN, Commissioner, Board of Works, Elizabeth, is the new president of the New Jersey State League of Municipalities. Also elected at the annual meeting in Atlantic City on December 1 were three vice-presidents: Mayor Howard E. Shifler of Long Beach Township; Mayor Joseph Altman of Atlantic City, and Commissioner F. Roy Baxter of Phillipsburg.

James J. Smith continues as executive director and treasurer, and Madeleine S. Frost as assistant executive director.

(For another item regarding the Atlantic City meeting, see page 75.)

Going to Bat for

Better City Government

Three years ago I opposed the city-manager form of government for Richmond. A year ago I had changed my mind and come to favor it. Today, I am not only for it, but am a crusader for Richmond's city-manager government.

My story, I believe, is the story of many Richmonders who at first opposed the adoption of the manager charter in our city. It is a narrative of how, in little more than two years, we have seen enough of our new government to know that we have gained far more than we thought we might lose.

T. N. P.

By T. NELSON PARKER
Mayor
Richmond, Va.

FIVE years ago an aroused group of Richmonders went to bat for better city government. By now, they have won the ball game. The winning run was scored just as all winning runs are scored, by getting a man around first, second, and third base, and then across home plate. In four separate and distinct achievements in this contest for better government, the Richmond team has, in effect, put a man on first base, advanced him to second, then to third, and finally driven him home.

I said the citizens of Richmond went to bat five years ago. They were few in number, only about 200, when they gathered at the Hotel John Marshall and decided to organize a citizens' association to encourage interest in municipal government. This movement was brought about by an acute apathy best demonstrated by the fact that in the general election for mayor in 1944, only 2,944 persons out of a population of more than 220,000 went to the polls to elect our mayor. This small group of citizens realized that we would never have representative and effective government until we secured much wider citizen interest. And so that was the first objective of the newly organized Richmond Citizens' Association.

It was not long afterward that the Association had a concrete task and an opportunity to encourage Richmonders to have an active part in government. The State Legislature had adopted an enabling act which provided that Richmonders, if they so desired, could hold a referendum on the question whether they wished to review the form of the current government. The enabling act required some 4,800 notarized signatures to petitions for the election. The young Citizens' Association undertook this task, and quickly secured the necessary number of petitioners. It then assumed the responsibility of securing in the referendum a large vote in favor of the appointment of a Charter Commission. The duty of this commission was to review the workings of the mayor-council government which, incidentally, was regarded by many authorities as a weak-mayor, cumbersome, bicameral type of municipal charter. In its first task, the Association did well. It got more than 20,000 voters to the polls for the referendum in November 1946—and more than 80% voted for a review of the government. The Richmond team had put its man on first base.

A Charter Commission of seven men, all backed by the Citizens' Association, was elected and given six months to draft a new charter. The Commission, after intensive review, proposed a council-manager government embodying nine council members elected at large, a modernized departmental grouping, a new personnel system, recognized fiscal controls, and many other features that were highly revolutionary to Richmond's municipal administration.

The Citizens' Association was now ready to take on its second responsibility, the fight for the adoption of the new charter. And it was quite a fight, but the election returns in November 1947 brought about a victory almost as overwhelming as in the first election. Over 70% of the more than 26,000 voters approved the new charter. *The scoring run was now on second base.*

Third Base and Home Plate

There is no need for me to tell you that forms of government count for little unless those who are capable and sympathetic administer them. Fortunately, Richmond realized this, and, as a result, the Citizens' Association again assumed an important responsibility. In the spring of 1948, it selected nine men whom it felt were best qualified to serve as members of the new council, and it vigorously campaigned for their election. Eight of those nine men were elected. The new government had been adopted and it was now to be launched under the stewardship of men who were its publicly avowed friends.

Some might conclude that this double-barreled achievement was, in effect, a two-base hit that advanced our man on second base to home and thereby scored the winning run. But most of us knew that the game was yet far from won. We had advanced our winning run to the third base. There was one more base to be made.

The winning run could be called safely across home plate when the new government in its operation demonstrated to a substantial majority of the community that it justified the hope and faith Richmonders had placed in it. Our new government has done just this. That is my own personal conviction, but I believe I speak the sentiments of thousands of others who originally opposed the adoption of the manager charter.

Outstanding Benefits

Our new council-manager government has brought many benefits. I have not time to recount all of these, but I do wish to mention some of those things which have impressed me most during first-hand observations over the last two years.

I am impressed with the operation of our impartial, non-political merit system of employment. We have secured a higher-quality city employee; we have gained the respect and confidence of the average employee; we have built the prestige and the reputation of the city service, and we have relieved the members of the Council from the cheapening, troublesome, and often embarrassing requests of those seeking favor

in employment and promotion in the city service.

I am impressed with the effectiveness of our new, nine-man, unicameral council elected from the city at large. It has demonstrated that it can handle the affairs of our city expeditiously and yet with greater knowledge and skill than that of the old bicameral 32-man council. *No longer* are important matters defeated through delaying tactics such as leaving ordinances pigeon-holed in committees. *No longer* are decisions made in committees with members of the Council following committee recommendations and voting despite their lack of knowledge on many measures. *No longer* are ordinances adopted without full consideration and thoughtful preparation. Today, each measure proposed in the Council has the careful scrutiny of the City Manager and his staff, so that Council members may have the fullest advice prior to their deliberations. *No longer* are important matters defeated by secret votes in executive sessions. Today, each measure to come before the Council is voted upon in open session, and each vote is recorded.

Spirit of Unity Prevails Over Sectionalism

I am impressed with the spirit of unity that prevails in our city government. *No longer* is there sectionalism, with representatives of one ward battling those of another. Today, our Councilmen represent the entire community. *No longer* is there log rolling. Today, we pave streets, build schools, and establish playgrounds on the basis of the over-all community need and not on the basis of "I'll vote for yours if you'll vote for mine."

I am impressed by the abolition of the ward politician. *No longer* does he thrive on favors, large and small, which he can hand out in return for questionable support at the polls. *No longer* does he weaken administration and influence legislation for the benefit of the minority. Today, the ward politician is through in Richmond.

I am impressed by the fact that administration is left to those who are employed to administer. *No longer* does the Council attempt to influence those decisions not properly the prerogative of the legislative branch. Today, the Council sets down policy. The Manager sees that it is carried out.

I am impressed with the sound fiscal controls and planning which we have been able to achieve under our new charter. *No longer* do we have deficit spending. *No longer* do we have hit-or-miss capital improvements. *No longer* do we have slush funds. Today we live within our income, we borrow for recognized capital needs only, and when we borrow we know how we are going to pay back.

And finally, I am impressed with the remarkable increase in citizen interest in local government, and the active participation of literally thousands of our citizens in some branches of municipal affairs. For the first time, we have put many community problems in the hands of citizen committees for study and for action. We have set up a committee on beautification, one on traffic problems, and—most unusual of all—a number of committees to work with the Department of Personnel in reviewing applicants for certain jobs. Twenty-six different boards consisting of 165 citizens who are specialists in their particular fields have aided the Department of Personnel in judging the aptitudes and the qualifications of applicants seeking jobs in the city service.

Efficiency with Democracy

With justified incredulity, you now could well ask me: "To be such a crusader for the manager form of government today, how was it you saw such little light three years ago?" And I will have to confess to you that three years ago I did recognize many of the weaknesses that were inherent in our old government, but I thought I saw in the new charter a challenge to many of those things which I felt were more important in local government than the mere attainment of business efficiency.

I feared a loss of some of the democratic character of our government. It seemed to me that a mayor, elected by the people, would be a more responsive administrator than an appointed manager. I was concerned about the abolition of ward representation, because I thought councilmen elected at large might not be as sympathetic to the problems of individuals and specific areas. I questioned the drastic reduction of the number in Council, from 32 to 9, and I had doubts about a one-chambered legislative body which might take precipitate action because of its lack of the traditional American system of checks inherent in our two-house legislatures. *But I have come to learn these things:*

An appointed city administrator, able to resist special interest and minority pressures, is capable of being as democratic as, and even more so than, an elected one.

A small one-chamber council, with no committees in the accustomed usage and no executive sessions, affords a greater opportunity for full play of the democratic processes than is found in the bicameral council.

Nine well-informed men can reach as democratic and as sound conclusions as 32 who might or might not be as well informed.

Councilmen who represent the entire city and who are influenced by consideration of the city's welfare, as a whole, approach more closely the democratic ideal, because territorial minorities are frequently the demanding and selfish type.

Yes, I feared weakening of the democratic processes in the manager plan, but I found, instead, a strengthening of these cherished values.

I am glad that five years ago a group of Richmonders had the vision to go to bat for better municipal government. I am glad their team won, for all Richmond has won. And I am proud to be just a rookie on this winning team.

An address delivered at the annual National Conference on Government of the National Municipal League, at the Hotel Statler, Buffalo, N. Y., November 20, 1950.

Municipal Utilities Are Not Tax Free

WHEN an extension or initiation of public power or utility systems is advocated, private power proponents usually point to the fact that they pay taxes, indicating that public power does not. But clear evidence that many municipal utility systems are paying their way, at least with regard to local taxes, is shown in Los Angeles. There, the Board of Water and Power Commissioners has been notified that taxes to be paid by the Los Angeles water and power systems to various counties and other local governments outside of Los Angeles will aggregate $672,626.23 this fiscal year.

These taxes are in addition to various in lieu payments, including $3,572,000 budgeted in 1950 for payment by the Department of Water and Power into the Los Angeles city government's general funds, it was pointed out by Robert A. Heffner, chairman of the board's finance committee.

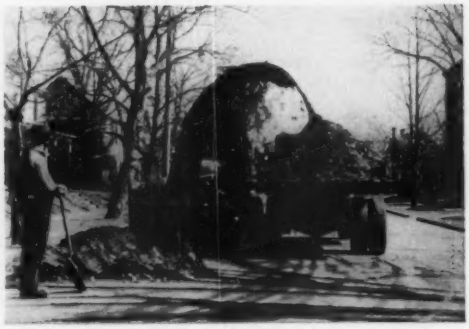
The Department as a purchaser of Hoover Dam electricity has also paid indirectly during 1950 about $280,000 out of the total of $600,000 which the States of Arizona and Nevada receive from the Hoover power-plant operation in lieu of taxes.

Total taxes and in lieu payments of the Department during the fiscal year 1950-51 will therefore add up to $4,524,626.

Tax payments to local governmental groups outside Los Angeles will include $326,290.19 to Inyo County; $155,916.82 to Orange County; $54,650.90 to Clark County, Nev., where the Hoover Dam is situated; $51,589.37 to the City of Seal Beach; to Mono County, $26,928.98; and to Los Angeles County, $56,910.37.

The taxes are on various properties of the Department which are outside the City of Los Angeles, including locations of transmission lines, land in Owens alley, which is the source of the Los Angeles Aqueduct, sites of power plants, and other Department facilities.

These Cushman motor-scooters put "whitewings" on wheels in San Diego, Calif.



Schenectady, N. Y., picks up leaves and other street litter with its SnoGo.

Elements of Good Street Cleaning

How best practice in this phase of municipal sanitation looks across the nation.

By WILLIAM S. FOSTER
Engineering Editor
The American City

STREET cleaning is a form of municipal sanitation that not only affects the well-being of the people in the community, but also measures directly their own neatness and feeling of civic responsibility. A city with clean, well-kept streets is invariably a city with clean government and a responsible citizenry.

Street cleaning, as a function of municipal sanitation and cleanliness, can be classified. An understanding of these groupings makes the organization of the entire work more efficient. Charles E. Day, Evansville, Ind., City Engineer, divides the work in this manner: [1]

1. *Beat Patrol* — requires one man, frequently titled "whitewing" by journalists and other popular writers. His trademark is the traditional push-broom, shovel, and cart to carry sweepings. He patrols a definite "beat," or number of blocks. He works under all conditions of traffic, and sweeps only where sweeping is needed. He has the advantage of being able to clean any type of pavement successfully. He does his work more thoroughly, but for a relatively higher cost per mile.

2. *Gang Sweeping*—requires three or four men and a truck, thus putting the Beat Patrol on an organized basis. Each man is equipped with whitewing gear. The gang can cover a larger area more efficiently.

To make "gang sweeping" faster, Fred Rhodes, Director of Public Works of San Diego, Calif., has mechanized his crew.[2] He assigns each man a small Cushman motor scooter with a box mounted on it to carry street sweepings and tools; he has a glass-pick-up man who uses a scooter with a stake body and buckets to hold the glass. He also has a paint crew working with a compressed-air tank on the scooter to renew traffic stripes and paint curbs for various traffic-control tasks.

3. *Hose Flushing*—a modern application of Hercules' famous cleaning of the Augean stables. It requires nothing more than a fire hose and a lot of water. Its main usefulness is in narrow streets or alleys where the standard equipment will not work.

4. *Machine Cleaning* — calls for the use of the modern street sweeper. It will do an efficient job on the average street, but does not work too well on rough cobblestones. Maintenance of brooms is an important expense. Large brooms will last for 80 hours; gutter brooms will last 100 hours. To be efficient, it requires that cars be cleared from the streets temporarily. Costs are reported to be from 62 cents to $2.50 per gutter mile.

5. *Flushing*—fast, can be used for cleaning beneath parked cars, is best used as a "polisher" after street-sweeping by hand or mechanical sweepers. It flushes the dirt into catch basins, where it will have to be rehandled.

How Clean Is Good Enough?

It is good enough when it meets the public's demands, according to Arthur Lahrman, Assistant Engineer, Highway Maintenance Division, Cincinnati, Ohio.[3]

Cincinnati considers that citizen reaction to the street-cleaning job is good when less than 5% of all complaints on street conditions concern street cleaning.

How Many Men and How Much Equipment?

This is a subject where generalizations are difficult and often unfair. However, to take a specific example we can turn to Jackson, Miss. In 1942, H. L. Loflin, Superintendent of Street Cleaning, recorded that he used this organization: [4]

Nine 2½-yard dump trucks were operated with three laborers and a driver. Assigned to each were two flushers and one motor sweeper.

The crews work on two shifts. Three night trucks are assigned to the commercial districts. Six day trucks go to the residences. The night shift sweeps nine miles of gutters every night, the sidewalks on Saturday night, and six paved alleys nightly.

The day shift sweeps 65.5 miles of gutters three times weekly. Jackson has 74.5 miles of pavement requiring sweeping.

Clarke Gardner, formerly City Engineer of Salisbury, Md., reported that the Elgin sweeper in his city averaged 13.6 curb-miles per day and gathered 1½ cubic yards of sweepings from each mile.[5]

The amount of work performed often depends on the way it is scheduled. For example, John I. Bothwell, Superintendent of Public Works of Culver City, Calif., reports that he was able to operate two Wayne sweepers an average of 484 miles per month, at a curb cost of 62 cents per mile last year.[6] The Wayne sweeper has a large hopper,

A bibliography of articles that have appeared on this subject in THE AMERICAN CITY will be found on page 15 of this issue.

tl.as making it possible for the operator to bring all street sweepings to a central point where they are picked up by truck, thus simplifying the pick-up work. Sweeping operations are performed from 3:30 a.m. to 10:30 a.m. The business district is swept daily. The rest of the city is divided into zones and swept once every ten days. The business district is a half-mile from the city dump, so sweepers go there directly to empty their hoppers, thus completely eliminating the rehandling problem.

When Should Streets be Swept?

The frequency of sweeping varies considerably. However, good practice would indicate a daily schedule or even oftener in the business district, and once every week or 10 days in residential areas.

In the downtown and business areas, the best time for street sweeping is between the hours of 1 a.m. and 9 a.m., according to Everett F. Balon, Supervisor of Street Cleaning of Dayton, Ohio.[7] At that time there are fewer parked cars and less traffic. The utlying sections can be cleaned very successfully during the daytime.

Sometimes public cooperation can simplify street-cleaning work. Paterson, N. J., for example, has been able to restrict parking to one side of the street on alternate days, thus freeing one side for the motor sweeper, and allowing it to work during the daylight hours.

What Constitutes Street Dirt and Litter?

In Dayton, Ohio, says Supervisor Balon, more than 30% of the street dirt comes from controllable sources such as overloaded coal, dirt, and refuse trucks, overflowing refuse receptacles, house and store sweepings; the greatest source of street litter is paper.

As an added feature, some cities have adopted the practice of flushing the downtown sidewalks as well as the streets, giving the downtown area a clean, washed appearance in the mornings. Fort Worth, Texas, has been doing this under the direction of H. H. Hester, Superintendent.[8] The sidewalks are flushed once every three days. The work requires a flusher operator, two laborers, and 25 feet of 1½-inch hose. The water is applied at 40 pounds per square inch.

Montclair, N. J., also flushes sidewalks along with streets three times a week in the downtown area.[9] F. M. Galloway, Town Engineer, established the practice there.

The side nozzle of the Montclair flusher is set so that it projects a stream to the side at about a 60° angle. In those areas where the sidewalk is 15 feet wide, the flusher travels along the curb lines. On streets with narrower walks, the flusher travels 15 feet from the building line. Streets are flushed iumediate after sidewalk flushing. A crew of laborers follows the flusher to remove debris left on the inlet grates. The operation costs $1.75 per curb mile, including rental of equipment from the Bureau of Equipment Operation, and handwork.

During 1948 there were a few experiments to see whether street flushing could be aided by the use of a synthetic detergent.[10] In Toronto, H. D. Bradley, Street Cleaning Commissioner, tried Naccanol in the flusher, at the rate of 2½ pounds per 1,000 gallons of water. He found that it wet the entire street surface better than plain water, and apparently removed oily films that resisted ordinary water.

Hartford, Conn., uses detergent in street-flushing work on a regular basis. L. C. Lovell, Engineer of Sanitation, reports that the city began using Naccanol N. R. in 1949 at the rate of two pounds per 1,000 gallons of water. In 1950 he reduced it to 1½ pounds and does not use it on rainy nights.

What Should Street Cleaning Cost?

This tricky subject is always complicated by the sort of cleaning standards the public wants maintained. In Cincinnati, Ohio, Arthur Lahrman, Assistant Engineer, Highway Maintenance Division, has subdivided costs along these lines:[3]

1. 62% of all costs of gathering and removing general street litter may be attributed to the people within the city
2. 14% of all costs is for snow removal
3. 3% is for special spot cleaning
4. 1% results from littering by truck operations
5. 9% is from leaf removal
6. 3% is from alley sweeping
7. 1% is from "high-water" street cleaning following excessive rains
8. 6% is from cleaning abrasives used in ice control from the street
9. 1% is from cleaning market places

In a summary made in 1942, probably reflecting 1941 prices, Charles E. Day, Evansville, Ind., City Engineer, gave these as typical costs:[1]

	Per Mile
Beat Patrol	
Sweeping only	$2.64
Including disposal	3.93
Gang Sweeping	
Sweeping only	3.84
Including disposal	5.38
Machine Sweeping	
Sweeping only	1.59
Including disposal	2.49
Flushing (not including catch-basins)	1.49

In Princeton, N. J., the cost of cleaning streets per curb mile was recorded at $1.60, including depreciation of equipment in 1942.[11] This matches against a previous cost of $7 per curb mile cleaning by hand. Princeton now cleans 3,000 curb miles annually, as compared with 800 curb miles with the hand crew. Two men pick up street sweepings, empty refuse cans along the street, and gather paper along the right-of-way. The sweepings and paper pick-up is about half the cost.

For many years one of the annoying problems facing public-works men was that of picking up the leaves that cluttered the streets each fall. Many of the more resourceful men developed equipment that did this work. Among them was a machine built around the use of

Leaf-loading work in Washington, D. C., is aided greatly by this Good Roads vacuum collector which sucks up windrowed leaves quickly and neatly.

A leaf-broom mounted on the front of an Austin-Western scooper bunches leaves into piles at Highland Park, Mich., for the Scoopmobile to pick up.

a cotton-gin blower. One early model appeared in Columbus, Ga., built by the late J. Mercer Graddy, Director of Public Works, in the summer of 1943.[12]

Since then, other cities have made their own leaf blowers, and several manufacturers have begun offering them to the municipal field. By using the manufactured unit, other resourceful men have found new tasks for the blower. At Maplewood, N. J., the Park Department and the Street Department combine their activities to make the blower useful all year.[13] In the spring and summer, Park Superintendent Richard Walter changes the blower into a tree sprayer, by removing the suction pipe from the blower. He places a grill over the blower inlet to prevent accidentally placing a hand in the blower and having it hurt by the impellers. He also places a 3-foot flexible rubber pipe on the blower outlet to direct its action. On the mouth of the pipe are mounted four specially adapted, 12-gph, furnace spray nozzles. The nozzles connect with a Hardie spray tank. By using the equipment in this way, he has given himself a powerful tree sprayer.

During the fall, Street Superintendent George Rogers uses the blower in the conventional manner to clear the streets of leaves. All collected leaves are composted in 5-foot-wide piles. After one year, a finished leaf mold is obtained for use in park and shade-tree maintenance. The yearly production amounts to 200 cubic yards. The cost approximates $8 per cubic yard, and produces a soil conditioner valued at $25 per cubic yard.

New York City's Experience

The leaf blowers have the added advantage of packing the leaves densely, reducing truck work. In New York City, the Department of Sanitation found that it could pack leaves to a weight varying from 250 to 900 pounds per cubic yard in a 24-yard body.[14] Compaction depends on the wetness of the leaves, type of leaf, extent of shredding, and type and condition of the fan.

New York City's Commissioner of Sanitation Andrew Mulrain reports that extensive tests conducted by Department engineers have resulted in an effective leaf-loading procedure.

Best results, they have found, are obtained with leaves that have been flushed to the curb and dampened slightly, either by a quick shower or by the flusher's action. Concentration in a windrow assists pick-up, and the wetness discourages scattering of leaves. Extreme wetness handicaps the pick-up.

New York City also found that the same blower picks up cinders from the street. Detroit and Washington, D. C., are two other great cities that use leaf blowers. Their crews use Good Roads units with self-contained leaf hoppers.

In Princeton, N. J., Borough Engineer I. Russell Riker estimates that he picks up 2,600 cubic yards of leaves at a total cost of $15,900. His crews push leaves into piles with a jeep-mounted leaf broom, and remove them from the streets with an Elliotte blower.

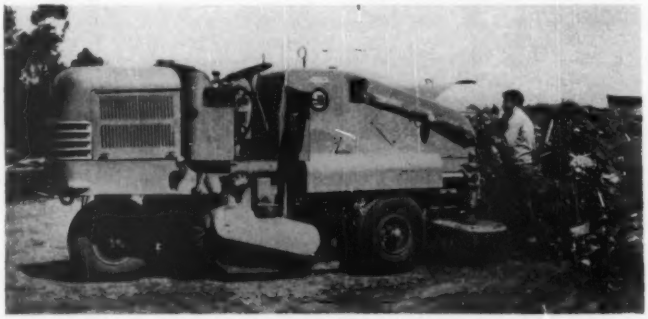
Lexington, Ky., uses a hay baler to pick up leaves.[15] The leaves are gathered into piles and fed into the baler by hand. Local nurseries are glad to get the leaf bales for use as compost. They get them in their own trucks. Although the leaves are small they nevertheless make a solid bale.

Some cities use their snow blowers successfully to load leaves. Montclair, N. J., has followed this practice for many years, turning its SnoGo to the task of leaf loading.

Hartford, Conn., also puts its snow-blowing equipment to the same tasks. Engineer of Sanitation L. C. Lovell reports that the Hartford crews use a SnoGo and a Sicard equally well. The blowers work best on wet leaves.

In contrast, Cincinnati, Ohio, after considerable research with various types of loaders, built its leaf-gathering program around a three-wheeled Scoopmobile. A job study was initiated around these machines, and a work crew and procedure set up. C. E. Brokaw, Superintendent of Highway Maintenance, reports that the crew disposed of leaves in a quarter of the time that they were able to by alternate methods. The cost of leaf collection, he found, dropped to half the figure Cincinnati used to pay, even though unit costs for labor and equipment have risen.

Arthur Lahrman, Assistant Engineer in the Department of Public Works, has prepared a 16-mm movie of this operation and will make this film available to public works departments elsewhere.



Culver City, Calif., uses a big-hoppered Wayne sweeper that brings the loads directly to the city dump, thus eliminating the expense of using a truck.

Montclair, N. J., flushes sidewalks from a specially mounted nozzle.

A Sicard flusher applies water and Nacconol to the streets of Toronto, Canada.

A bibliography of articles that has appeared on this subject in THE AMERICAN CITY will be found on page 15 of this issue.

How Today's Mobilization *will affect municipalities*

Allocations anticipate continuing public-works program

By H. E. FOREMAN
Managing Director
Associated General Contractors of America
Washington, D. C.

(From an address presented at the annual meeting of the American Municipal Association in Washington, D. C., December 5, 1950.)

THE purpose of the nation's partial-mobilization program is to resist armed aggression with force, wherever it may break out in the world. The program has been gaining in momentum steadily since July, but the full impact has not yet been felt. The ultimate size of the program will depend on war developments, and, to a large extent, on our military and foreign policies.

No one can foresee the future accurately enough to state positively what is likely to happen.

The National Production Authority issued its Order M-4 on October 27 and amended and clarified it on October 31 and November 15. This order prohibits the commencement of publicly and privately financed construction projects for amusement, entertainment, and recreational purposes.

NPA officials have suggested that a careful reading of the order and its amendments will reveal that it is not as drastic as it may appear. Maintenance and repair are not prohibited. Substantial amounts of reconstruction can be undertaken, so long as the basic design of the structure is not altered.

Many small projects can be undertaken where the construction cost does not exceed $5,000. Grading and landscaping are not considered a part of construction, so that, for example, work costing far more than $5,000 could be undertaken on a playground as long as the actual construction cost did not exceed that figure.

Of more importance is paragraph 71.10 of the order, which provides for relief in the event of unreasonable hardships. NPA officials explain that it is not their policy to prohibit construction for the named purposes where it will cause unreasonable hardships for communities, and they will give consideration to cases which clearly set forth the hardships.

The M-4 order presumably establishes the pattern for such action as may be found necessary in the future to limit the commencement of other types of construction. At the present time, no answer can be given as to what further types of projects will be restricted, or when such action may be taken.

Based on the experiences of World War II, it is reasonable to assume that essential municipal projects such as schools, hospitals, water works, sewers, and streets would be among the last to be curtailed if further restrictive action becomes necessary because of war developments.

No answer can be given now to the question of whether or not, at some future time, it will be necessary to file an application and secure NPA permission to undertake any construction project. NPA is not now staffed to handle such work, and it will be some months before it could have that staff.

The present policy of NPA is to prohibit the commencement of projects, and not to halt projects which are already under way.

Availability of Materials

The production of most construction materials has been at a high rate in recent years. Shortages in various areas have been caused by circumstances such as a high rate of construction activity, strikes in local plants, and transportation difficulties, and in some cases, by sellers' holding back their supplies for higher prices.

The volume of defense construction from federal appropriations which have been made will amount to less than 10% of the current volume of new construction. Future appropriations may increase this amount. But for the present and near future, defense construction probably will not be a major factor in the consumption of materials.

Generally, it is safe to predict that there will be sufficient materials for needed municipal construction.

The present priorities system provides that the Defense Order, or DO, ratings can be assigned for authorized procurement and construction programs of military agencies and the Atomic Energy Commission. These ratings give precedence to these particular orders.

The question has arisen as to whether or not the NPA will make provision for DO rating for essential municipal projects, such as badly needed water systems. For the present, the policy of NPA has been to limit the DO ratings to military production or construction.

If the mobilization program continues to expand and the war becomes more serious, it is likely that a controlled-materials plan will be adopted.

Based on the experiences of the last war, it is reasonable to assume that in a controlled-materials plan there would be an allocation of materials to essential municipal public-works projects.

Claimant Agencies

Late in November, the Commerce Department designated 19 federal agencies as claimant agencies to present to the Department the requirements with respect to materials and facilities for various programs coming under the jurisdiction of these agencies.

Thus, the Bureau of Public Roads becomes the agency to present the requirements of materials for all highway construction and maintenance, including urban streets constructed with or without federal aid. Others designated as claimant agencies for presentation of requirements were the Secretary of the Interior for petroleum, gas, solid fuels, and electric power; the Federal Security Agency for school and hospital construction and the domestic distribution of supplies and equipment needed in the fields of health, education, welfare, and recreation; the Housing and Home Finance Agency for all housing construction, alterations, and repairs, and state and local community facilities.

Improvement in Allocations

If it is to be interpreted that the designation of these claimant agencies is a step toward the adoption of a controlled-materials plan, and that when a plan is adopted these 19 agencies would have allocations of materials for the programs under their jurisdiction, the construction industry would be able to complete essential projects more easily than was possible during the last war when

there were practically no provisions for the direct allocation of materials for construction purposes.

It should be pointed out, however, that so far there is no machinery for claimant agencies to secure allocations of materials.

Construction Costs

On the subject of construction costs we must recognize the steady pressure for wage increases. These bring about price increases. Whether or not, or when, there will be wage and price controls, is a question on which your guess is as good as anyone's else.

Before the invasion of South Korea, the outstanding characteristic of the construction industry was intense competition.

Since July there has been steady pressure for increased wages and higher-materials prices. Competition remains keen, but with present uncertainties, contractors are forced to be more cautious in their bidding to avoid bankruptcy.

With respect to the costs of your public-works projects, I would like to make two suggestions. First, is that if you are concerned about a project, consult your local group of general contractors before you call for bids. They may be very helpful to you in making suggestions which will enable you to hold your costs to a minimum on the project.

Second, is that you award one general contract for the project to an experienced and competent general contractor. You will find that when the general contractor has the undivided responsibility, you will get the best possible project for the lowest possible cost.

Conclusion

In summary, I would like to make the following general conclusions:

1. As long as there is a partial-mobilization program, and unless there is a war of such major proportions that extreme measures must be taken, essential municipal construction can be undertaken and completed.

2. There will be adequate materials and manpower for the completion of essential municipal projects, with some local and temporary difficulties to be encountered. The allocation of materials to construction purposes under a controlled-materials plan will make it easier to the industry to fill essential needs.

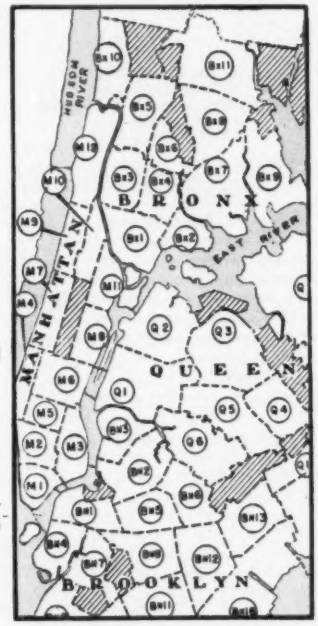
3. The construction industry has the capacity to carry out efficiently all essential public-works projects.

4. Construction costs will share the tendency to inch upwards with the costs for other services and commodities, but will be in line with other costs.

5. The urgency of its need and the availability of funds probably will determine whether projects should be started now. There is no way of foreseeing when conditions will be more favorable for undertaking public-works construction.

6. Leaders in the construction industry will take intense pride in their own willingness and ability to organize the industry for most effective service in the civil-defense program.

66 Community Planning Districts Proposed for New York City



Some of the planning districts proposed by the New York Planning Commission.

NEW YORK CITY has joined a growing list of other major cities who are attempting to solve their planning problems by dividing themselves into community planning districts or areas, so that public and private improvement programs may be developed and coordinated on a neighborhood basis. The proposal has been made by the New York City Planning Commission.

Detailed outlines of the plan have been sent to more than 600 civic organizations throughout the city, for their further discussion and comment, before the districting scheme is adopted on a more formal basis. The idea has already been endorsed by many of the organizations concerned with housing and planning problems.

The 66 proposed districts are intended to serve as logical units for planning schools, housing, hospitals, libraries, playgrounds, street systems, and other public facilities. They will also be useful in all considerations of land-use and zoning patterns. The establishment of these districts will enable individuals and civic groups to identify themselves more closely with their own areas, and encourage more effective participation in community planning.

The district boundaries proposed were determined by a number of factors, such as physical barriers, including parks, highways, and railroad lines, areas served by local community and civic groups and by various city departments, to census tracts and other statistical units.

Omitted from the planning districts are the airports, most of the large parks and cemeteries, state hospital properties, etc. According to the commission, needs and influences of the present have been balanced against future objectives.

The five boroughs of the city have been tentatively divided as follows: In Manhattan, twelve districts with populations ranging from 12,000 to 250,000; in the Bronx, 11 districts, from 25,000 to 230,000; Brooklyn, 19 districts, from 65,000 to 230,000; Queens, 16 districts, from 40,000 to 200,000, and Richmond, 8 districts, ranging in population from 6,000 to 80,000. Many of the districts will continue to bear the names derived from old towns that have been absorbed by the city as a whole.

Traffic Facilitation In Medieval Cities

IN SOME places the rule existed that at least one clear thoroughfare must be left through the center of the town, so that a horseman with a lance across his saddle could ride the length of the street without encountering obstructions.

New towns were often laid out in regular square plots with broad streets at right angles instead of the narrow, crooked streets of old towns which had grown up irregularly. There is something to be said, however, for narrow, crooked streets. They are not windy; they are cooler in summer.

That men then knew something about handling traffic and town planning is shown by the custom of having streets lead in four directions from the corners of a square instead of crossing the center. Thus traffic in or from any direction could follow the outer edges of the square and leave the center free and undisturbed for market or meeting place.

From *The History of Medieval Europe*, by Lynn Thorndike. Houghton Mifflin Co.

IN LYNCHBURG, VIRGINIA

SKILLED VOLUNTEERS come to the rescue

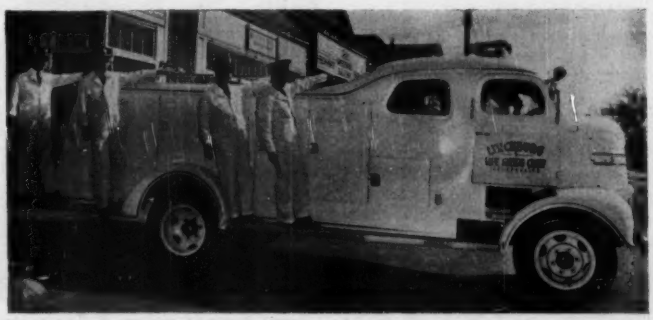
By V. HOWARD FORD
President
Lynchburg Life Saving Crew, Inc.

Rescue trucks can call each other or the police over the new GE three-way radio.

SINCE it was founded 17 years ago, the Lynchburg (Va.) Life Saving Crew has responded to over 10,500 calls. We are financed by public contributions and make no charges, except for the cost of oxygen and ice used in our oxygen tents. On our first anniversary (March 26, 1935) we asked for $350. Our budget now runs to $7,500 a year, the funds being raised annually by donations from the citizens of Lynchburg and surrounding counties.

Emergency calls in 1949 included 66 bone fractures, 65 burn cases, 2 gas-poison cases, 16 internal-poison cases, 5 drownings, 19 dog bites, 280 persons injured by falls, and 11 vehicle accidents. We gave six demonstrations, attended nine public gatherings, besides answering 636 incidental calls.

Three major accidents occurred that led to the establishment of the Crew on March 26, 1934. First, a sailboat overturned on Timber Lake near Lynchburg, drowning one of its occupants. No grappling irons or other rescue equipment was available. The body was finally recovered by using a well hook on a rope which accidentally caught in the buttonhole of the victim's coat. Secondly, a furniture store caught fire on a freezing night, and great damage resulted. During the long hours of fire fighting, six firemen were carried to the hospital. Immediate treatment on the scene by trained men with proper equipment could have relieved much suffering. Thirdly, a transient bureau



Squad Car 1 has devices for pulling people out of almost any predicament.

established during the depression by the Federal Government for the housing and feeding of transients caught fire from an overturned vat of grease at 4 a.m. Of the 190 men sleeping in this building on that disastrous night, 22 burned to death and 75 were hospitalized.

Crew Well Equipped to Cope with Disaster

Due to careful handling of our funds, the Crew now owns a vast amount of first-aid, life-saving, and rescue equipment. The main items include a 1947 Oldsmobile sedan, which is our first-call Squad Car No. 1; a new Dodge cab-over-engine custom-built rescue truck; a Ford 1½-ton panel-body emergency truck, all of which are equipped with 3-way GE mobile radios. We also have four 14-foot Thompson boats; one 14-foot Judd boat; several outboard motors; three boat trailers; grappling irons of several different types; life jackets; 1,000- to 1,500-watt and 1,000- to 1,250-watt portable generators with flood and spot lights; four Emerson resuscitators; a 15-by-15-foot hospital tent; a Davis inhalator; an H & H inhalator; an acetylene-torch cutting outfit; a Jarret spling stretcher, Stokes stretcher, asbestos suit, and several sets of Thomas splints; four McKesson oxygen tents; a McCaa oxygen-breathing gas mask, Burrell all-service gas masks, and two Scott Air Pak gas masks; one Drinkard-Collins iron lung, and one Mulliken portable iron lung; several burn and first-aid kits; safety belts, doctor's kits, axes, mattocks, acid gloves, electrical gloves, and fire extinguishers; a Davy automatic fire escape, one insufflator; a tannic acid spray outfit, and many, many other pieces of emergency equipment too numerous to mention. We also own a large building known as our Crew Hall, which is used for our meetings and drills and housing of equipment. This building is equipped for a small emergency hospital and can be so converted in a very few minutes.

Three-Way Radio

Frequently we had our equipment out on separate cases at the same time and it was impossible to contact each other. That was a serious handicap, as we frequently spend days and nights on a single drowning case and contact at intervals is almost mandatory. We talked of the time when we might have a three-way radio system. This happened last year when the City of Lynchburg installed a complete new three-way police and fire radio system. The Life Saving Crew was allowed to come in on this new system. Now we lose no time in calling for additional crew members, additional equipment, police assistance, etc., and we are also able to report our location and the circumstances under which we are working. We purchased General Electric radios because of their space-saving compactness. This was an important consideration because our emergency cars carry so much equipment.

No Charge for Service

The significant point about the Lynchburg Life Saving Crew is that our membership is *entirely volunteer* and we make *no charge* for our services. We have members from various industrial plants, the fire department, and businessmen. We keep from 22 to 25 active members.

Although an independent organization and not under city jurisdiction, we do have a thoroughly satisfactory working agreement with the city whereby we house our squad car in the Rivermont Fire Station. The city also furnishes us an office and a large storage room in the fire station. The city allows us to have two fire men as crew members who act as alternate drivers of the squad car.

Jamestown, N. Y., Storm Sewer Encloses a Surface Stream

By **HUBERT WALKER**
General Foreman
Department of Public Works
Jamestown, N. Y.

ROUGHLY 320 lineal feet of 60-inch reinforced concrete pipe on an 0.40% grade are enclosing a small stream adjacent to the Municipal Stadium. The stream, in addition to carrying spring water from the school park, carries the storm-water runoff from a good share of the northeast section of the city to the Chadakoin River, which is the outlet of Chautauqua Lake. The pipe installation became necessary because of real-estate development in the area.

The pipe was laid under the direction of Benjamin Schwartz, City Director of Public Works; Ernest Keeler, foreman on the job; Louis Gagliano, shovel operator, and the writer. The ditch was opened, and the pipe placed with a Lorain back hoe.

Now Engaged in Highland-Norton Sewer Project

The machine is now engaged in the construction of the Highland-Norton Sewer Project, which consists of approximately 3,100 lineal feet of 48-inch reinforced-concrete pipe connecting the southwest section of the city with the Chadakoin River. The depth of the invert is from 9 to 16 feet below the surface of existing ground.

General Foreman Hubert Walker points out the details of the sewer work at Jamestown., N. Y., to Benjamin Schwartz, the City Director of Public Works.

A line sketch of the water plant serving Spirit Lake, which has an estimated 1950 population of 4,500.

Spirit Lake, Iowa

Establishes Softening Program

New treatment plant uses lime—soda-ash process, has vacuum filter for sludge handling

THOSE who admire lake beauty frequently refer to the famous Lake Lucerne in Switzerland, whose charm is matched only by the historic Spirit Lake of northern Iowa, a lake noted to Iowans not only for its great beauty but also for the Spirit Lake Indian massacre, a significant chapter in pioneering history.

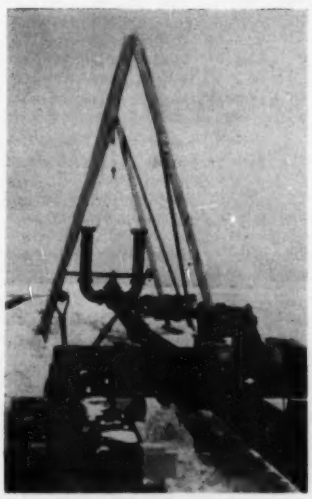
However, despite the lake's rare beauty, the quality of its water was still not high enough to meet the standards required today. The lake water has a total solids content of 257 ppm and a total hardness count of 224 ppm, of which 90 ppm is calcium and 134 ppm magnesium. Spirit Lake is fed by artesian wells, the water traveling through limestone strata. The new plant will not only provide the people of Spirit Lake with the safety of filtered and chlorinated water, but also the convenience of softened water.

Old Plant Utilized

The softening plant will supply the lime—soda-ash treatment, using an Infilco Accelator for chemical mixing. The old pumping station, capable of delivering 100 gpm, will serve as a booster station to the new plant.

The new improvement was designed and its construction supervised by the Henningson Engineering Company, Inc., consulting engineers of Omaha. Frank Thompson is the Superintendent of Water Supply for Spirit Lake.

The plant will draw water through a 10-inch cast-iron cement-lined main laid 1,255 feet into the lake. The pipe was laid during the winter of 1949-50 through 30 inches of ice.



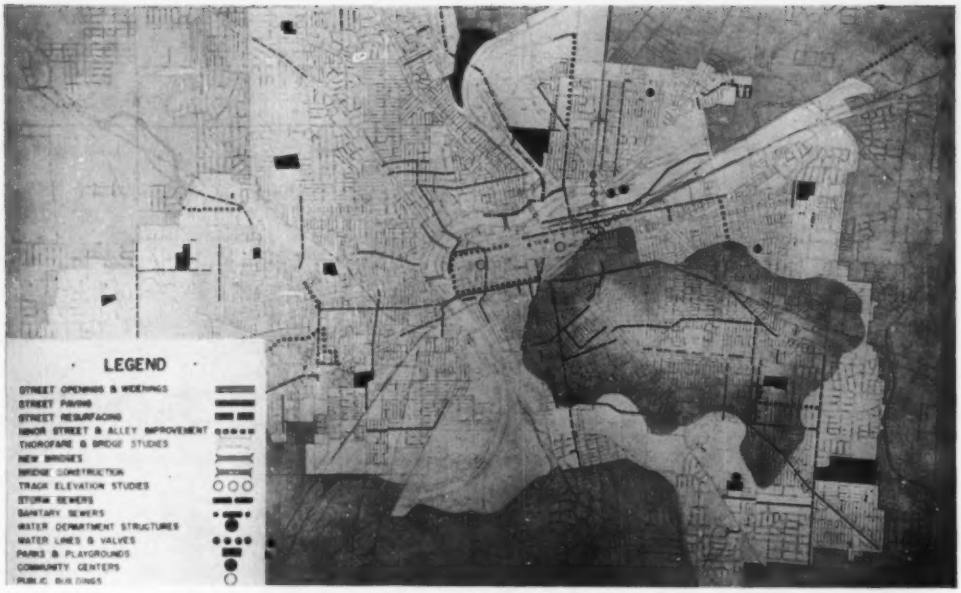
The intake was placed in winter when the ice made the work easier.

The plant itself is a two-story structure and will house two deep-well Worthington high-lift pumps. Each will have a capacity of 700 gpm and will be equipped with 50-hp motors. One high-lift pump is being equipped with a Johnson right-angle gear drive and a natural-gas standby engine.

Filter Plant Details

Treatment facilities include an Accelator up-flow reaction basin along with Infilco chemical feeders that administer lime, soda ash, alum, and activated carbon. The Accelator delivers water to rapid-sand filters equipped with Anthrafilt, or fine anthracite coal, for a filtering medium, in order to take advantage of the sharp filter particles and their lighter weight, thus reducing the amount of wash-water needed. The filters are equipped with Palmer rotating surface wash to aid in cleaning. The filtered water is recarbonated with an Infilco carbon-dioxide burner to correct the high pH that the lime—soda-ash softening always produces.

The plant will be distinctive among water-filter plants in that it will dewater the lime sludge with an Oliver vacuum filter, thus doing away with the excessive amount of space required for this function by the more conventional type of plants.



Character and general distribution of the projects of Dayton's 1950-1951 Capital Improvement Program are shown above.

PROGRAMMING CAPITAL IMPROVEMENTS—

How Dayton's 10-Year Plan Works

By CHARLES B. FORD
Associate Planner, City Plan Board
Dayton, Ohio

DURING the past six years the City of Dayton, Ohio, has developed a well-rounded method of scheduling long-range capital expenditures. The resulting programming procedure has seven inherent advantages in that it:

1. Provides an orderly and economically sound method of developing a schedule of projects for a number of years in advance
2. Enables the City Manager and department heads to make the best possible use during the year of the men, equipment, and funds available
3. Provides a method of maintaining an up-to-date schedule of projects
4. Provides a method of coordinating the projects of the various departments
5. Provides flexibility in that it can be adjusted annually, thus making the programming a continuing process
6. Enables the city to coordinate all proposed improvement projects with each other and with the general growth and requirements of the community
7. Provides an over-all perspective with respect to the development of the city, and thus is of benefit to both the administrative officials and the public

The 10-Year Post-War Program

Prior to 1945 the city had spent virtually nothing on major public works for at least a decade. The depression period, and the following war years, proved difficult times in which to accomplish needed public improvements. As a result, a substantial back-log of improvements had accumulated. In June of 1945 a 10-year program of minimum needs for post-war capital improvements was presented to the City Commission for consideration.

The 1945 Program was the result of approximately one year's work of the City Plan Board's staff. The program was developed in cooperation with the City Manager and the various city departments, who provided much of the basic information and valuable assistance in establishing priorities for the many projects evaluated in the process of reducing a complete inventory of capital-improvement needs to a balanced program of projects of primary importance to Dayton's future sound growth.

The size of the 1945 Program was established on the assumption that Dayton could afford to meet its most urgent capital-improvement needs at a minimum rate of approximately $2,500,000 per year. The program was intended to meet the reasonable capital-improvement needs to serve adequately all groups and all sections of the community, and at the same time to keep the 10-year program within the limits of the Dayton taxpayer's pocketbook.

The financing of the 10-Year Capital Program was accomplished, in large measure, by submitting to the electorate

two major issues in November 1945. A bond program totaling $9,000,000 was voted upon to provide nearly one-third of the needed funds. In addition, an amendment to the City Charter was submitted, which would permit the levying of additional millage, a portion of which would be used to finance part of the program of capital improvements. The electors approved both of the issues.

1949 Capital Improvement Program

The second major step in Dayton's long-range planning process occurred in February 1949. At that time the status of the 1945 Capital Improvement Program was summarized and presented to the City Commission. The general form of the summary was worked out to provide a complete analysis of the status of the program approved in 1945.

The status of the voted bond funds was analyzed to provide pertinent information regarding the financing of the remainder of the program. The information on funds available for capital-improvement projects was divided into four classifications as follows:

1. Bonds approved in November 1945
2. Bonds issued or authorized
3. Bond funds expended
4. Balance in Bond Fund

To present for City Commission appraisal a complete picture of the status of the 1945 program, four lists of projects were prepared. Collectively, the lists provided detailed information on each of the projects proposed in the program, and in addition, furnished pertinent data on other projects completed which had not been included in the original program. The four lists were as follows:

1. Projects in the 1945 Program on which construction had been completed
2. Projects in the 1945 Program currently under construction or under contract
3. Projects in the 1945 Program remaining to be completed
4. Projects not specified in the 1945 Program which were completed or were under contract

Following the completion of the "Summary of Current Status of the 10-Year Capital Improvement Program," a recommended 1949-1950 Capital Improvement Program was prepared on the basis of data submitted by the various departments and presented for approval to the City Commission in April, 1949. The various individual projects in the program were divided into two groups: (1) projects specified in the 1945 Capital Improvement Program and (2) projects not specified in the 1945 Capital Improvement Program considered essential on the basis of development since 1945. This division reflected the desire of the City Commission to give first priority to the 1945 Program projects and to consider all other recommended projects on a merit basis. A brief "Justification" column was provided in connection with the second group of projects to facilitate the appraisal of the necessity for their inclusion in the program.

1950 Progress

The long-range public-works-planning procedure was extended further in 1950. The first and most important part of the procedure was the preparation of the 1950-1951 Capital Improvement Program. The second part is the development of a projected program for the next four years, 1952-1955. The third part is the preparation of what might be called a "project reserve" listing of essential projects which should be sufficiently comprehensive to show all of the capital-improvement needs of Dayton. The first portion of the procedure, the 1950-1951 Capital Improvement Program, has been presented to the City Manager and acted upon by the City Commission. The remaining portions of the program are being assembled and analyzed at the present time and will be presented for approval in the near future.

In addition to the "Recommended 1950-1951 Capital Improvement Program," an analysis of the status of the 1945 Program was prepared to provide a picture of the portion of the 1945 Program completed to date, the portion under construction or contract, and that remaining to be completed. Also included was an additional list of projects that were not included in the 1945 Program but which had been completed or were under contract.

In one other major respect the programming procedure represents a departure from those of preceding years. This year, for the first time, a manual was prepared to assist the various departments in the assembling of data and the preparation of departmental programs. It is hoped that the manual has simplified and expedited the work of each department and division submitting projects for inclusion in this year's program.

The scope of Dayton's program, as specified in the manual, includes all those items which can be reasonably termed capital-improvement projects. Therefore only those projects of large size, fixed nature, or long life, which provide new or additional public services, are included. Streets, sewers, public buildings, parks, and similar items fall within this category. Whenever possible, each item which is a usable structure or separate facility is designated as a project.

Individual Project Report Form Gives Detailed Information

The first step in the preparation of Dayton's program is the compilation by the various departments of a comprehensive list of needed improvements. Each project is listed on an Individual Project Report form which provides detailed information concerning the project relative to the description, purpose, location, estimated addition to, or saving in annual expenditure for operation and maintenance, anticipated method of financing, and the estimated cost and status of the project.

From the inventory lists, the departments schedule the projects by years in accordance with the need and urgency of each. The departmental programs are then submitted to the City Plan Board for analysis and coordination with the programs of the other city departments. After working out the proposed methods of financing the program, the Plan Board consults with the departments on the resulting programs, and the final product is presented to the City Manager and the City Commission for action.

The gratifying manner in which the several departments and divisions have responded to past requests for capital-improvement programs and project details has resulted in the development of a successful programming procedure. All departments and divisions are to be commended for their cooperation.

Municiproblem

WHEN is a profit a loss? That weighty question has been troubling Jack Loftus, City Treasurer of Decatur, Ill., ever since he recently received a check for one cent from the Hardware Mutual Insurance Company of Minnesota.

It seems that the check represented the insurance company's 2% tax on its gross fire-insurance premiums collected during the year in Decatur, the said premiums having totaled but 48 cents.

So far, so good! But the problem that knots the brow of Treasurer Loftus is the fact that the city spent 3 cents for mailing out the tax form to the Hardware Mutual Insurance Co., 3 cents for sending them a proper receipt and another cent for the various materials and labor used in the transaction.

The bottle of red ink, Mr. Loftus, is in the upper right-hand drawer of your desk, next to the bottle of aspirin tablets.

The new plant will be embraced by the railway on the left and the highway on the right. Note the San Francisco-Oakland Bay Bridge in the distance.

Six East Bay Cities to

California municipalities act under East Bay Municipal

A NEW sewage-treatment plant will serve six California cities—Alameda, Albany, Berkeley, Emeryville, Oakland, and Piedmont—all across the bay from San Francisco. It will receive the liquid wastes from an estimated population of more than 500,000, and will be ready to serve nearly 900,000 by the year 2000. In quantity, it will receive an average of 80 million gallons daily, and a daily maximum of 188 mgd when the plant goes into operation. By the year 2000, these quantities will have risen to about 125 mgd for a yearly average, and nearly 300 mgd for a daily maximum. The new plant will correct the foul and polluted conditions of the Oakland Inner Harbor, the Tidal Canal, and San Leandro Bay which have been a growing detriment to industry, commerce, shipping, and recreation. The only person who has a good word to say for the polluted condition is A. H. Abel, General Manager of the Oakland Port Authority, who says the polluted water at least drives away the teredo which ate away Port Authority piers when the water was pure. However, even he is sure that the port facilities will survive in good shape.

Board of Engineers

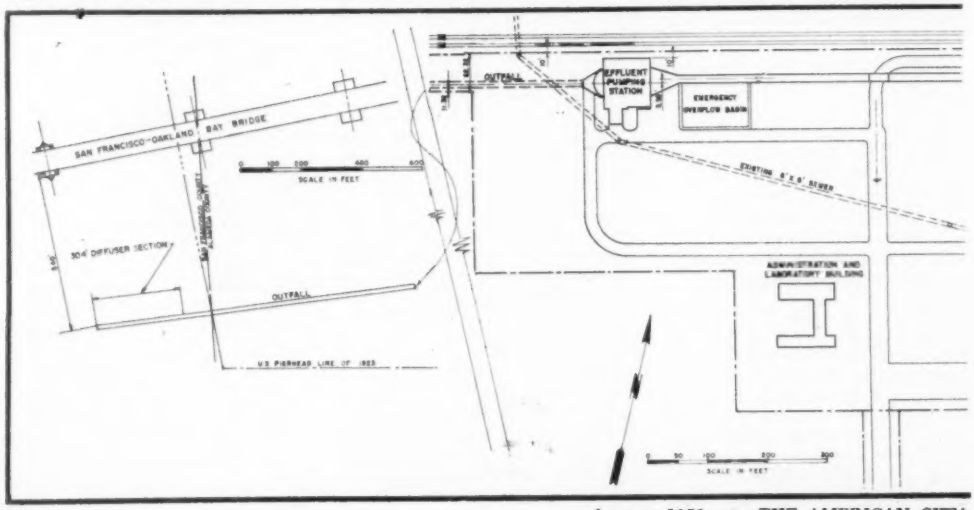
The new plant is being built in accordance with the recommendations of a board of engineers whose members include Samuel A. Greeley, of Greeley and Hansen, Chicago; Clyde C. Kennedy of San Francisco, and Thomas Veatch of Black & Veatch of Kansas City, Mo. This board recommended that a single treatment plant be built; that the sewage receive primary treatment only, with separate digestion of the sludge. The treated effluent is to be disposed of in the deep waters of the bay.

The treatment follows well-established principles. The sewage will first be chlorinated with Wallace and Tiernan chlorinators. The chlorine will then be measured by Fischer and Porter flow meters. The sewage will then be screened through 1-inch Link-Belt automatic bar screens, and raised by pumps so that it can flow the rest of its way through the plant by gravity. There will be five of these pumps: three will operate at only a single speed and will pump 42,000 gpm, and two will be able to operate at either 35,000 or 42,000 gpm. These pumps, with a diameter of 42 inches, were supplied by the Morris Machine Works, and are reported to be among the largest that they have ever fabricated.

The sewage will then pass through five grit chambers, one for each pump. They will be 60 feet long, designed for velocities varying from 0.5 to 1.0 foot per second. The chambers will have automatic grit-removal equipment and grit-washing facilities.

The plant will have 10 settling basins; each with two channels 17½ feet wide by 180 feet long. The basins will provide a detention time of one hour at wet-weather flows. Chain-Belt collectors will take sludge from basins.

The new plant had to be fitted to a relatively long, narrow site.



The main pumping station and grit chambers will be here. The building will house five pumps and grit chambers.

End Pollution Problems

Utility District to build 80-mgd sewage-treatment plant

By R. C. MATTHEWSON
Supervising Mechanical and Electrical Engineer
East Bay Municipal Utility District
Oakland, Calif.

The effluent will then pass through Link-Belt mechanical screens to remove all visible solid material and will be discharged to the Bay. The treatment is expected to remove half of the suspended solids, and the waters of the Bay are expected to bring the remainder to a stable condition. Screenings and grit will be buried in a sandy area near the plant. Sludge will be digested in three 95-foot-diameter tanks. The Bay officials expect to explore the possibility of using the sludge for fertilizer purposes.

A large portion of the $23,500,000 bond issue will be spent constructing the intercepting system. This will be 21 miles long and made of concrete pipe. Some of the line is being built by tunneling rather than by open cut because of the many surface obstacles, such as traffic and subsurface conduits that would hamper open-cut construction.

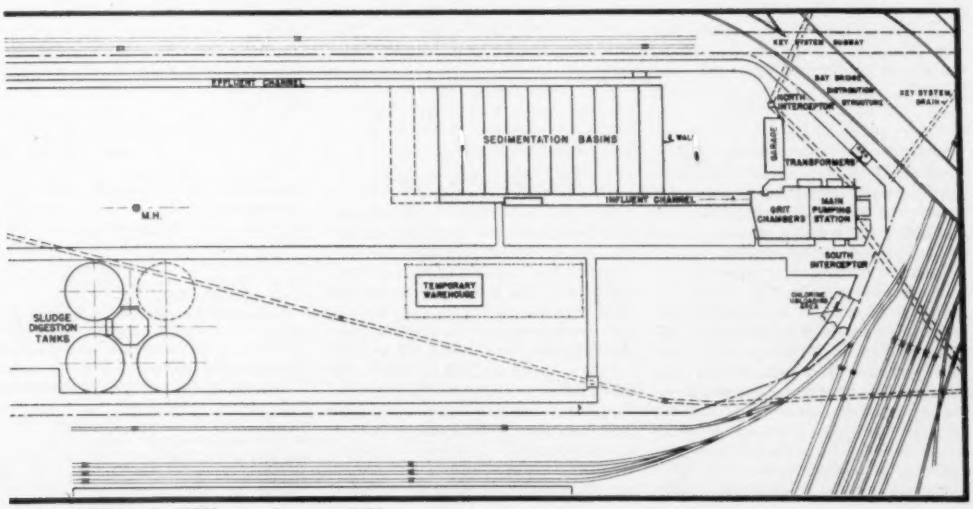
The interceptor system will consist of two parts, the north and the south section. It is designed to extremely low gradients, from 15 to 30 inches of drop per mile of pipe. The design is based on a minimum velocity of 2 feet per second. Some of the line is being built through ground with soft, mucky foundations, thereby requiring the pipe to be supported on wood piling driven into the sand about 50 feet below the surface. The pipe is being supplied by the American Pipe and Construction Company, of Oakland.

Another piece of construction that requires careful attention is that of the outfall. Part of this goes on land, and a second portion extends into the Bay. The land portion consists of 16-foot lengths of 9-foot-diameter lead-caulked Lock Joint concrete pipe, and will be supported entirely on piling. The portion extending into the bay will be laid in a trench on a gravel bed with a sand-fill cover of 8 feet. The last 300 feet of pipe will be equipped with diffusers to disperse the sewage. The pipe is being supplied by the United States Concrete Pipe Corporation of Stockton.

Special Cement

A special admixture is used in all concrete work, identified as "calcined reactive silicaceous material," replacing 25% of the portland cement.

The plant is scheduled for partial operation early in 1951 and for complete operation by the end of the same year. The plant construction is being directed by R. C. Kennedy, Chief Engineer of the East Bay Municipal Utilities District. H. A. Knudsen, Manager of the Sewage Disposal Division, is in charge of design, construction and operation. Darrell Root is responsible for sanitary-engineering design. Electrical and mechanical designs are being prepared by the writer, and field operations are being directed by W. R. McLean.



Tripled Power Capacity

Provo, Utah, builds new electric plant addition to boost capacity to 14,000 kilowatts

Provo's fast-growing plant lies before a backdrop of snow-capped mountains.

THE LATEST ($1,500,000) addition to the Provo, Utah, municipal electric plant has more than tripled its capacity in its 10-year life. Starting with 4,000 kw in 1940, the plant now has 14,000 kw with the addition of a new 7,500-kw unit completed last winter.

The Provo plant, when it first went into operation, immediately faced unanticipated war loads thrown on it as a result of the location of the Geneva Steel Plant near Provo. In 1941, these heavy loads made a third generator of 2,500 kw necessary. By 1946, the peak power loads began exceeding the plant's rated capacity of 6,500 kw. In order to provide ample reliable service for its ever-increasing load, the Provo City Commission accepted the Utility Board's recommendation, and instructed its consulting engineer to draw up plans and specifications for the present plant additions.

The result was the present construction, completed quickly enough for the new generator to go on the line for a test run in November of last year.

7,500-kw Generator

The backbone of the new generating addition is the new 7,500-kw Elliott Company turbine generator and condenser. Steam for the new unit is generated by a new Riley Stoker Corporation Boiler, which produces steam at the rate of 100,000 pounds per hour, at a pressure of 450 psi. The boiler has a traveling-grate spreader stoker. Coal for the plant is received in railroad cars and is dumped in a track hopper. A Stephen-Adamson Manufacturing Company coal-handling system elevates the coal to an overhead bunker, from which the coal flows through a weigh scale to the new boiler unit. Ashes are removed from the boiler by a United Conveyor Company dry-vacuum system, and are delivered to an overhead storage tank from which ashes can be spouted directly into trucks or railroad cars as desired.

Cooling water for the condenser is normally obtained from an irrigating canal, which flows through the power-plant property. A Fluor Corporation cooling tower has also been installed to supplement water from the irrigating canal when required, or to supply, on occasion, all the cooling water necessary when there is no water in the irrigating canal. Feed-water to the boiler from the condensers is first heated to 325° by a low-pressure closed-feed water heater, a Worthington de-aerating type of heater, and a Ross closed high-pressure heater. The switch gear and station-service transformers are furnished by the General Electric Company.

The power-plant building addition has been constructed, and is ready to receive an additional 10,000-kw turbine boiler and auxiliaries.

Administrative Board

The plant is directed by a five-man administrative board that is given administrative but not legislative powers. Under its operation, the municipal electric service has been able to reduce rates three times during its history. The average annual residential consumption has risen from 1,333 kw-hrs. in 1940, to 2,557 in 1949, or 67% over the national average of 1,529 kw-hrs. The plant is financed by revenue bonds guaranteed by plant earnings rather than city taxes.

The plant administrative board during the expansion consisted of Earl Conder, City Engineer; G. E. Austin; J. H. Calder, Chairman; Dr. V. M. Tanner; and City Commissioner J. E. Lewis. Elmer Jacobs is General Superintendent of Utilities and Theo Anderson is Plant Superintendent. The plant design and construction has been the responsibility of Burns and McDonnell, consulting engineers, Kansas City, Mo.

Formation Announced of National Park and Recreation Council

A NEW, widely representative National Park and Recreation Council has been organized. Robert E. Everley of Glencoe, Ill., is president, and Fred G. Heuchling, is executive secretary, with offices at Suite 308-10, 116 S. Michigan Ave., Chicago 3, Ill.

The directorate of the new organization includes top-flight executives of U. S. National Parks, U. S. National Forests, of leading state park systems, and prominent administrators of city park and recreation agencies from coast to coast. Although there have long existed several large and influential organizations in specific branches of public park and recreation activity, the present council is composed of leaders in all such branches.

The specific purpose of the new organization is to make the American people fully conscious of the attractions and services offered by the millions of acres and tens of thousands of units included in the public parks and recreation centers of this country. To accomplish this, the council will promote an annual observance of a Park and Recreation Week each year. For 1951, the event is scheduled for May 27 to June 2.

American Municipal Association Stresses Local Role in Civil-Defense Machinery

CIVIL DEFENSE emerged as by far the leading topic of interest at the highly successful meeting of the American Municipal Association held in Washington, D. C., last month. Interest in the subject was accentuated by several key speakers at the meeting such as Senators Paul H. Douglas of Illinois and Harry P. Cain of Washington, who gave their views on the seriousness of the world crisis.

Unanimously adopted by the Association was a comprehensive statement of civil-defense policy, drafted by a special committee headed by Richard Graves, Executive Director, League of California Cities. The statement took sharp issue with several points in the bill prepared by the National Security Resources Board, and currently undergoing consideration by the Congress.

The AMA statement urged that civil defense be ranked with the Army, Navy, Air Force, and the productive capacity of the nation as an essential part of the national security program. It recommended the establishment of civil defense as a civilian department within the Department of Defense with a civilian Secretary of Civil Defense. It vigorously opposed the requirements in the proposed legislation that federal civil-defense authorities deal only with the states, leaving cities of all sizes and in all circumstances dependent on their state governments for the transmission of information from federal sources and for all contacts with the federal Civil Defense Administration. It was pointed out that many rurally dominated state legislatures have traditionally shown little interest in urban problems, and that critical target cities cannot afford the possible risks and delays that may result from state action or inaction in the civil-defense field.

New Machinery Set Up

The American Municipal Association promised full cooperation to the Federal Civil Defense Administration, a new independent agency, established by executive order early in December. The new agency, now being organized, takes over civil-defense activities formerly performed by the National Security Resources Board, together with all the personnel engaged in such activities at N.S.R.B. In attendance at one of the AMA meetings was Millard F. Caldwell, Jr., former Governor of Florida, who has been named Director of Civil Defense, and Acting Deputy Director of Civil Defense, James J. Wadsworth.

Key points in the AMA statement:

Most of the civil-defense resources of trained personnel and equipment in this county are municipal. Reasonable men do not propose in times of emergency to substitute inexperienced authority for experienced command. Yet in many states this is the inevitable result of the policy proposed. . . .

The primary interest of the national government in civil defense is not to maintain the prestige or consolidate the authority of the state governments, but to protect the lives and property of the people of the nation, to preserve our productive capacity, and to maintain our will and ability to prosecute a war. . . .

One of the most difficult tasks which confront the American people is the maintenance of the essential elements of our democratic institutions while we marshal and mobilize the full resources of our nation. The civil-defense program will best be served by strengthening rather than weakening the institutions and practices of local self-government.

Mayors at Congressional Hearings

Among the mayors who made their views known both at the AMA meetings and before the hearings of the Senate Armed Services subcommittee headed by Estes Kefauver of Tennessee, were Mayor Dorothy Lee of Portland, Ore; Mayor deLesseps S. Morrison of New Orleans; Mayor Elmer E. Robinson of San Francisco; Mayor William F. Devin of Seattle; Mayor Albert E. Cobo of Detroit; Mayor John B. Hynes of Boston; Mayor William P. Grant of Fall River, Mass., and a number of others.

Since the AMA meeting, the Council of State Governments has also raised serious objections to some portions of the recommended civil-defense legislation. It has suggested that the shelter program, estimated to cost $2,250,000,000, with the Federal Government paying half the cost and state and local governments the remainder, should be divorced from the proposed legislation and considered separately by the Congress in order to avoid a time-consuming controversy which would delay immediate enactment of more essential civil-defense legislation.

Elected president of the American Municipal Association was Mayor Devin of Seattle, succeeding Mayor Quigg Newton of Denver. Mayor Cobo of Detroit was elected vice-president. The association also named four trustees: Mayor Joseph Darst of St. Louis; Mayor Boyd E. Golder of Utica, N. Y.; Ed E. Reid, executive director of the Alabama League of Municipalities; and John G. Stutz, director of the Kansas League of Municipalities.

An additional four trustees were also named, who will take office if the AMA approves a pending proposal to enlarge its board to 12 members instead of eight. These four are Mayor Clifford E. Rishell of Oakland, Calif.; Harold I. Baumes, executive secretary, League of Virginia Municipalities; Mayor Hynes of Boston; and James J. Smith, executive director, New Jersey League of Municipalities.

Conference Agenda

Among the special features of the AMA conference were a Town Meeting Discussion, conducted by Mr. George V. Denny, Jr., on "Do State and Federal Grants-in-Aid Mean the End of Strong Local Government?" and a round-table session on "How Will the Defense Program Affect the Finances of Cities?" At the round table, Frederick L. Bird, Director of Dun and Bradstreet's Municipal Service Department, urged municipalities to hold the line on costs and construction in every way possible during the next two years when, he said, the inflationary peak caused by the mobilization effort will be at its height.

Adopted Resolutions and Policy Statements

Comprehensive resolutions and policy statements on the following subjects were also adopted, and are available from the offices of the American Municipal Association in Washington and Chicago:

Highway and traffic policy; building code uniformity; payments in lieu of taxes; syndicated crime and establishment of a permanent coordinating committee on crime control; integral local health services; fire-insurance rating and grading; equalization of assessments; the decennial census of population; federal excise taxes, the relations between federal, state, and local governments; federal-municipal relations; accelerated depreciation on air- and water-pollution-treatment works; state interest in tidelands; importance of public construction, and park and recreation facilities in the national emergency; extension of Old Age and Survivors' Insurance to public employees.

Thin Concrete Pavements—

Sepulveda Street, built in 1926 of 4-inch-thick concrete, rates "excellent."

"K" Street, constructed in 1926, of 4-inch-thick concrete, rates "good."

Perris Street, built in 1927 of 4-inch concrete, is rated "poor."

Scott Street, 5 inches thick, built in 1928, was rated "excellent."

By HUGH BARNES
District Engineer
Portland Cement Association
Los Angeles, Calif.

CITY officials have long been interested in service records of so-called thin-section concrete streets. Pavements of 4- to 5-inch-thick concrete are, of course, more economical and are consequently interesting to those who plan and build residential streets.

Because of the extremely small volume of heavy wheel loads on *residential* streets, a concrete pavement of 5-inch uniform thickness should be adequate, regardless of subgrade soil-bearing values. In our opinion, even a 4-inch uniform pavement is economically feasible and will have a long service-life where subgrade soils of good-bearing value exist under climatic conditions such as prevail in Southern California. All of this assumes, of course, modern construction methods and jointing systems, and proper subgrade-moisture control.

San Bernardino Pavement Records

Between 1924 and 1929, San Bernardino, Calif., constructed 229 blocks of 4- and 5-inch concrete residential streets. A survey of these pavements was conducted recently to determine how they are serving and what maintenance is required, and to estimate the minimum life expectancy. Some 60 projects were involved in this survey—all distributed throughout the city within a wide variety of subgrade-soil conditions.

Of these 60 projects studied, 11 were 5-inch thick pavements and the remaining 49 were of 4-inch design. All of the 5-inch pavements are serving today. One project in this group is now 26 years old, two are 25 years old, five are 22, and three are 21. The average age for the 5-inch-thick group is 22 years.

Of the 49 pavements 4 inches thick, 40 are still serving today. The other nine have been resurfaced at an average age of 16 years and now serve as a base. All but one of these resurfaced projects became heavy-duty traffic arteries during the 16 years and cannot be considered as residential streets. One of these, even with tremendous increase in traffic volume, served for 12 years before its resurfacing in 1937.

Of the 40 pavements of 4-inch design still serving, 8 were built in 1924,

What Service-Life Can They Provide?

San Bernardino (Calif.) study indicates that a modern 5-inch concrete pavement used in residential streets will give at least 38 years of service without resurfacing.

9 in 1925, 15 in 1926, 7 in 1927, and 1 in 1929. The average age for this group is 23 years.

To estimate how many more years of service these pavements might be expected to give, a system of classification was set up. The age of pavement was given some consideration in arriving at a rating, as were design and construction procedures used at the time of construction.

Among the 60 projects, three were constructed without joints of any kind except construction joints at the end of a day's work. On 32 of the projects, transverse joints were used at regular intervals. The remaining projects had longitudinal center joints only.

On the 32 projects where transverse joints were used, spacing ranged from 50 to 120 feet, and in no case was the interval close enough to control cracking completely. On residential-street pavements in the San Bernardino area, a contraction-joint spacing of 20 feet should be the maximum on the basis of what we know about concrete today. Similarly, expansion joints should be eliminated, except at street intersections where cross streets abut through streets, or where they are required for some special reason.

Considering the lack of joints on many of these jobs and the wide spacing of contraction joints when used, it is not surprising that there were many uncontrolled cracks. These cracks are usually irregular and create an unpleasing appearance. If they were not accompanied by structural defects like "stepping off" or excessive spalling, however, they were not considered as affecting pavement condition. Where cracks, corner breaks, or other breakage indicating structural weakness had occurred, they were, of course, taken into account.

Four ratings were established: poor, fair, good, and excellent. A street was considered *poor* if it had a number of advanced corner cracks or other structural weaknesses, or had "stepped off" or spalled sufficiently to require a number of small black leveling patches. A "poor" street probably will need resurfacing within five years, although it still serves without excessive maintenance.

A street classified as *fair* has only a limited number of advanced corner cracks or small black leveling patches. It should serve for at least five additional years without excessive maintenance before resurfacing would be required.

Streets considered *good* have no small black leveling patches, and corner breaks are almost entirely limited to primary fractures. These should have a probable minimum of 10 years of low maintenance service remaining.

To be rated *excellent* a street must have no patches (other than service cuts), and little, if any, breakage. These streets have at least 15 years of low maintenance service remaining.

Attention should be directed to the fact that resurfacing does not mean slab failure and the end of its useful life. The resurfacing means only the placing of a resurfacing course on the old concrete pavements, thus allowing them to serve as an excellent base for many additional years.

The first table shows that the average *probable minimum* age of the forty-nine 4-inch thick pavements, including those already resurfaced, is 30 years.

This second table gives the average *probable minimum* age of the 5-inch thick pavements as 33 years.

FOUR-INCH THICKNESS PCC PAVEMENTS

Year	*No. Projects*	*Age Now*	*Age When Resurfaced*	*Rating*	*Estimated Future Service*	*Probable Minimum Age*
1924	2	..	20	.....	..	20
1924	1	..	21	.....	..	21
1924	1	26	..	Poor	0	26
1924	2	26	..	Poor to Fair	3	29
1924	2	26	..	Fair	5	31
1924	2	26	..	Fair to Good	7	33
1924	1	26	..	Good to Excellent	12	38
1925	1	..	11	.....	..	11
1925	1	..	12	.....	..	12
1925	1	..	19	.....	..	19
1925	1	..	23	.....	..	23
1925	1	25	..	Poor	0	26
1925	2	25	..	Poor to Fair	3	28
1925	1	25	..	Fair	5	30
1925	2	25	..	Good	10	35
1925	3	25	..	Excellent	15	40
1926	1	..	12	.....	..	12
1926	1	24	..	Poor	0	24
1926	2	24	..	Fair	5	29
1926	3	24	..	Fair to Good	7	31
1926	4	24	..	Good	10	34
1926	1	24	..	Good to Excellent	13	37
1926	4	24	..	Excellent	15	39
1927	1	..	13	.....	..	13
1927	1	23	..	Poor	0	23
1927	2	23	..	Fair to Good	7	30
1927	1	23	..	Good	10	33
1927	2	23	..	Good to Excellent	12	35
1927	1	23	..	Excellent	15	38
1929	1	21	..	Excellent	15	36

FIVE-INCH THICKNESS PCC PAVEMENTS

Year	*No. Projects*	*Age Now*	*Rating*	*Estimated Future Service*	*Probable Minimum Age*
1924	1	26	Fair	5	31
1925	1	25	Poor	0	25
1925	1	25	Fair to Good	7	32
1928	1	22	Good	10	32
1928	3	22	Good to Excellent	12	34
1928	1	22	Excellent	15	37
1929	3	21	Excellent	15	36

It is interesting that all of the 5-inch pavements built in 1928 and 1929 were rated good or excellent, with the majority in the latter classification. All of these projects had both longitudinal and transverse joints at regular intervals, although transverse joints were expansion joints spaced at fairly long intervals. The 5-inch pavements built in 1924 and 1925 had no transverse joints except construction joints.

Installing contraction joints at 20-foot intervals, omitting expansion joints, and using present-day construction methods probably would have added as much as 10 years to the probable service-life of these pavements. It would seem conservative to increase the probable minimum service-life of 33 years to a minimum of 38 years for modern concrete residential-street pavements.

From the findings of this survey, it seems that the pavements studied are serving well and many are handling traffic weights and volumes far beyond those expected for residential streets.

The results of the study of these 60 projects make it reasonable to expect an average *minimum* service-life of 38 years for 5-inch residential streets in the San Bernardino area when the pavements are constructed to present-day standards of design and technique.

Municipal
Public
Relations

The City Tells Its Story

By HENRY DAVIS NADIG

Executive Director, Association of Municipal Public Relations Officers

Little things, like symbols; police and fire PR booklets

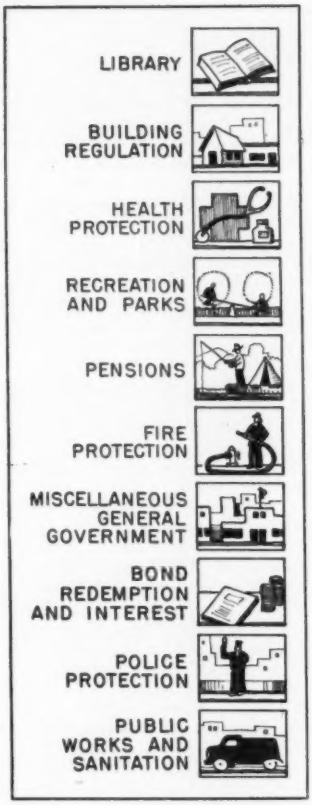
MEN and women working in MPR will always be on the lookout for every type of opportunity to give emphasis to municipal activities. Aside from doing the best possible job on major phases of their MPR programs, alert public-relations personnel can be expected to make information capital of little things, of less obvious techniques.

Great Choice of Media

The MPR officer recognizes that it takes a heap of techniques, practices, accomplishments to give real direction to and solidify a sound MPR program. He appreciates the more immediate effect of his larger exploits but he also is aware of the long-range significance of the less dramatic; every way, however seemingly unimportant, that he can strengthen municipal consciousness contributes to the operation, objectives, and effects of the whole MPR program.

You may think, for example, that there is hardly anything less important to municipal government than the use of symbols. Yet a sharp MPR man may be able to make such effective use of symbols throughout the whole municipal operation that this very little thing itself might contribute more than a bit to both municipal *esprit de corps* and public understanding and interest.

This subject of symbols comes up because there appears to be a growing use of them in printed annual reports—and effectively so. You may see symbols cropping up more and more in municipal pamphlets and leaflets, on posters and cards, in exhibits and displays.



The Los Angeles 1950 annual report makes extensive use of symbols. A single small pictorial symbol appears at the upper corner of many of the pages to identify the department or service discussed. Symbols are also used (22 of them) to liven up and pictorialize two graphic pages devoted to financial income and outgo.

The City of Dayton, Ohio, employs symbols in its recent annual report to highlight seven main municipal operations, and the back cover of this well-presented 48-page pictorial report offers another effective use of symbols, as shown in the illustration on the next page.

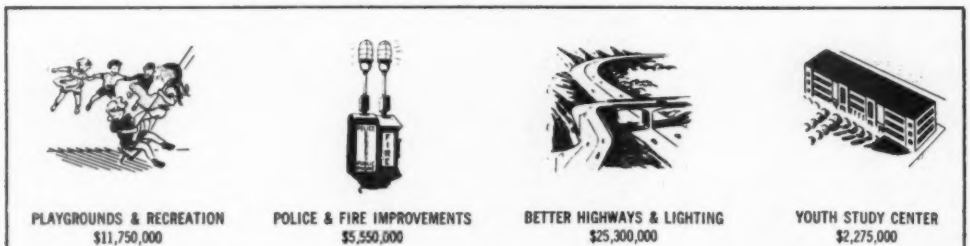
Black and White Sketches

Highlights of progress in Philadelphia are symbolized at an early point (page 5) in the 72-page annual from that city. Fifteen symbols are displayed on the page, each a black and white sketch on a white disc, with the subject and amount expended printed below in each instance. And Columbus, Ohio, has given symbolic treatment in a dozen sketches to its finance reporting.

A very interesting, open-end, 12-page annual comes from Winnetka, Ill., and here, too, we find symbols employed—in this case to illustrate the setup of the village government. The Winnetka report, incidentally, is a very neatly accomplished job, well designed, easy to read, and illustrated in both half-tone and line drawings. It is titled: "1949-50 In Brief . . So that those who run may read."

Symbols serve a twofold purpose: they attract attention; they identify. To

Shown here are selections from the numerous symbols used in both the Los Angeles (top cut) and the Philadelphia annual reports.



The back cover of the Dayton, Ohio, annual report shows interesting employment of graphic symbols.

MPR they can serve the added purpose of constantly reminding the citizen of the particular department or service signified. Such an obviously simple thing, to take one application, as the use of departmental or service symbols on municipal vehicles may not only help to extend recognition among the public but also do a continuous job for municipal-employee morale. Not every service is so easily recognizable, vehicularly, as police and fire; but there are times when recognition of the others might be of vital importance. The MPR man will think of other practical applications of symbols.

Simplicity is the keynote of a good symbol. Since the idea is to attract attention for quick identification, the simpler the symbol the more certain it is to achieve its purpose. A complex representation, however nicely graphic and however well drawn, cannot do the all-around useful job of a clear-cut, simple design.

Think it over—this matter of simple graphic designations for your departments and services. It might pay off, both inside city hall as well as outside.

Police, Fire Booklets

Police and fire are the two municipal departments which seem to have thus far been given the most attention, MPR-wise. There have been a number of publications on each, and now here are two more, both pointed to the individual officer's MPR.

The Police and the Public, by Richard L. Holcomb (Institute of Public Affairs, State University of Iowa), is a 36-page, 8½-by-11 pamphlet illustrated with cartoon-type drawings. The strength of this publication lies in its thoroughness of detail, built upon public relations as a policy and program of action, and in use of the second personal pronoun. It ought to be a must for every cop in the country—no matter how good he may think he is MPR-wise.

The Individual Fireman's Responsibility in Public Relations, by the Committee on Firemen's Training, National Fire Protection Association, is a smaller-size, 20-page booklet. It supplements the NFPA's earlier publication, *A Public Relations Manual for Fire Departments*. Actual instances of good or bad public-relations action are given to illustrate many of the points. Third-person treatment here produces a more general tone than in the police book.

When Seattle Police Needed Young Friends

ASKED "Is our police department run honestly in the interest of all citizens?", 57% of 2,000 graduating seniors of Seattle, Wash., replied "no."

The result, according to the Public Administration Clearing House, was an all-out effort on the part of Seattle policemen to win friends among school children. The aim was not only to attain some popularity, but also to increase understanding of the department's activity.

Educational Campaign

The police department mapped out an educational campaign, with the aid of the Seattle public schools. It was decided to reach the students through their U. S. history course, required of all sophomore students. A special lecture was designed for that section of the course devoted to municipal government to acquaint the pupils with the civil-service requirements for becoming a patrolman, and the examinations and the six months' training given each new officer.

Special emphasis was placed on the unfavorable attitudes of juveniles toward the police department, and how 5 or 6% of any group, whether it be teen-agers or policemen, will usually set a bad example or cause trouble for the majority of the group. In the second half of the lecture period, set aside for questions from the students, it was found that many of their attitudes toward the police were based on a feeling of being "picked on" in traffic. National statistics of the disproportionately high number of fatalities and accidents caused by young drivers were cited. The point was stressed that police are more concerned with preventing accidents by encouraging observation of traffic laws than they are in punishing offenders after an accident has occurred.

A survey following the lecture series showed only 37% of the students answering "no" to the question regarding honesty of the police force.

Planned for a Quarter Century's Needs

Moline, Ill., builds a new water pumping station, adopts complete electrification program

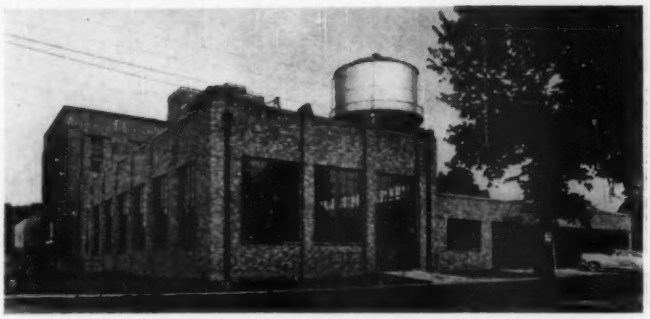
By EARL H. BELING
Beling Engineering Consultants
Moline, Ill.

THE story of the municipal water works of Moline is typical of many moderate-sized cities. Essentially, it centers around city growth.

Moline has had a steady, unspectacular growth since it was incorporated as a town in 1848. Preliminary 1950 census figures indicate a population of 38,000. Like every other city with a publicly owned water system, Moline has had to solve the problem of an ever-increasing demand for water which a growing population creates.

The normal needs for the present, and estimated requirements for the next 25 years, were met nicely in a project completed last fall. On Sunday afternoon, August 27th, Moline's Mayor Hjalmar Oakleaf, Water Committee Chairman Alfred G. Waffle, and other city officials previewed Moline's new, ultra-modern water-pumping station. They were joined by officials from the surrounding cities that make up the metropolitan area—Rock Island, East Moline, Silvis, Milan, and Fulton on this side of the Mississippi, and Davenport and Bettendorf on the Iowa side.

The engineers for design, Beling Engineering Consultants of Moline, and the prime contractors, Priester Construction Company of Davenport, Iowa, explained the operation of the new pumping station during the preview, and later were hosts at a buffet lunch.



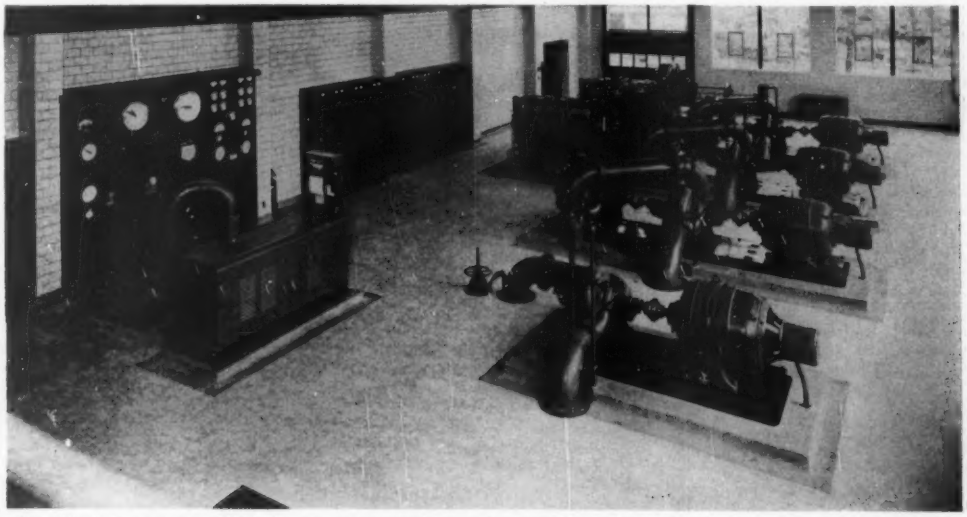
Moline's new water pumping station. The pump room is in the foreground, the garage at the right. The water tank behind the building holds water used in washing filters. Sedimentation and filtering basins are on the other side.

The project started three years ago, when A. E. Anderson, Superintendent of Water Works, called attention to the fact that the old steam-powered pumping plant was operating well beyond its rated capacity.

Our firm was retained by the City Council to survey the existing plant, and to submit recommendations that would meet the community's needs for the next quarter of a century. We made a comprehensive study of the basic problem, weighing the merits of a steam-powered plant as compared to a completely electrified pumping plant.

The City Council, acting on the facts presented in the survey, selected the electrically powered system and directed us to prepare final plans.

Two revenue-bond issues totaling $1,500,000 were authorized in 1947 and



Four high-lift pumps in Moline's new water-pumping station are driven by 350-hp electric motors. Two units, in the background of the picture, are connected to 425-hp gasoline engines to be used in the event of power or motor failure. Control panel for the system is at the left. An emergency gasoline-powered electrical generator, for small motors and for lighting in the water-works station, stands in front of the control panel.

1948 to carry out a three-step modernization program. The first phase was to replace the old steam plant, located two city blocks away from the filter plant, with an electrified pumping station in a new wing to be added to the waterworks plant. M. R. Beckstrom, of Moline, was employed as architect for the new buildings.

The transition from steam to electricity has been carried out over the past few months without interruption of service; it is now completed.

The second phase, that of installing additional sedimentation and filtering basins, is nearing completion, and is to be followed by the final step of installing water-softening equipment. The whole modernization program is expected to be finished early in 1951.

Uses Mississippi River

Moline uses water from the Mississippi River. River water flows into a new offshore intake and thence by gravity to a new shore well or screen house, located on the river bank a short distance from the pumping plant. The screen house is arranged to provide a traveling screen for normal operation as well as a bar screen for emergency use.

Water from the shore well is taken into the suction inlet of three low-lift pumps that discharge the water into the mixing basins. Provision has been made to install at a later date, if needed, a second intake line and an additional pump.

Pump Capacities

One of the low-lift pumps, with a capacity of 5,250 gpm, is driven by a 50-hp electric motor. In the event of power or motor failure, it can be driven by a 65-hp gasoline engine.

The second low-lift pump, of 3,500-gpm capacity, is driven by a 40-hp motor. The third, having 2,800-gpm capacity, is powered by a 30-hp electric motor.

Although the raw-water pumps are set at an elevation well below the normal river stage, a complete vacuum priming system, either electricity- or gasoline-driven, has been installed to assure priming under any conditions.

Purified water from a 3.2-mg clear-water reservoir is pumped into the city's 100 miles of mains by four high-lift pumps. One, driven by a 250-hp motor, has a 2,780-gpm capacity at 251-foot total head. Each of the other three has a capacity of 4,170-gpm at 266 feet total pumping head, and is powered by a 350-hp electric motor. Two of these units are dual driven by 425-hp gasoline engines for use in the event of power or motor failure.

The priming system for the high-lift units is composed of two vacuum pumps. Both are driven by 5-hp electric motors, one being dual-driven by a 10-hp gasoline engine.

The water works is served by two 13,200-volt, 3-phase services. The power lines draw from separate prime generating sources. A substation, installed to serve the new pumping plant, steps the power down to 2,360 volts. Floor space and control-panel connections have been provided for later installation of another high-lift pump, should this be needed as the city grows.

No Outside Power Needed

An auxiliary power generator driven by a gasoline engine is available to furnish electric power for small motors and lights in the plant in the event of power outage. With the emergency gasoline engines on the pumps, the plant can operate indefinitely without outside power.

Among the numerous automatic features incorporated in the plant is a single strip chart on which three basic control factors are recorded automatically and continuously; the water level in each of the two 500,000-gallon elevated tanks; the water level in the clear-water reservoir; and the pressure in the distributing system. This unified record provides the operator with information necessary to keep both the treatment system and the distributing system in balance, to recognize instantly a bad break in a main, and to meet demand as it occurs. Associated with this record is another automatic recorder that shows fire-alarm calls as they come in from all over the city, providing the operator with a means of anticipating fire demands, should a call develop into a major blaze.

Another automatic-control feature prevents water hammer and any possibility that water could reverse its flow back through the high-lift pumps. Electrically powered controls were installed on the check valves that control the flow of purified water into the city system. To put a high-lift pump into the line, the operator need only to turn a single control handle. This starts the electric motor which, in turn, gradually brings the pump up to speed. Only when the pump is at rated speed does the electrically controlled rotary check valve open slowly. The reverse is true when taking a pump out of the line. Upon throwing the control handle, the check valve starts closing, and only when it is fully shut does the electric motor cut off, permitting the pump to come to a stop. The same sequence would take place in the event of a power failure.

To put one of the large stand-by gasoline-powered engines into emergency service in lieu of an electric motor, the operator again needs merely to push a single button. Only when the engine and the pump are at full-rated speed will the check valve open, and it will stay open only as long as the engine maintains sufficient speed to pump water.

Still another feature is the automatic vacuum system that keeps a prime on all pumps at all times so that any one of them can be put into service at a moment's notice.

A 10-ton overhead traveling crane can reach any equipment on the pump-room floor, and, through large floor gratings, the equipment in the basement.

The walls of the pump room are finished in green-tinted ceramic tile. The floor is terrazzo. Motors are painted green; control panels are black with chrome trim; the ceiling, with recessed lighting panels, is white. Adjoining the pump room are a large garage, a meter shop, a tool room and a parts-storage room.

The plant employs, in addition to the superintendent, an operating engineer, Lloyd Grantz; a full-time chemist, Robert Baker; four pump operators, and four filter operators.

City Growth Responsible

The history of the Moline water system reflects the problem of continual city growth. In 1898, average daily water use was 2 mgd. This increased to 2½ mgd in 1923; 3 mgd by 1943 and 4½ mgd in 1948 when the present expansion program was started. Currently, the daily average is between 5 and 6 mgd, while in 1965 it is expected to be 7½ mgd.

Peak Demands

The peak domestic demand in Moline, a factory city, comes from 7 a.m. to 3:30 p.m., with the heaviest load in the last half hour of this period, when factory workers are cleaning up. On a hot, dry summer day, however, it comes from 6 to 9 p.m., when home owners are sprinkling lawns and gardens.

The highest pumping rate in 1950 was 8 mgd, in the summer months. In 1949, it climbed to a 10-mgd rate. Actual use was even greater, since some water is drawn from the 1,000,000 gallons in the two elevated tanks, in addition to that being pumped at the station.

According to the code of the National Board of Fire Underwriters, the pumping system of a city the size of Moline must be able to provide 6,000 gallons a minute for a 10-hour period, in addition to the water used for other purposes, even during peak-demand periods. The combined load, under such circumstances, calls for a pumping rate of 14 mgd—well within the capacity of the new Moline station.

By JAMES F. SHORT, Jr.
Secretary
City Planning Advisory Board
Chicago, Ill.

City Planning Education In Public Schools

In a democracy, the long-range problem of education for city planning is not a matter simply of graduate education for technicians. Effective city planning requires the active support and participation of the people.

But, how can this type of public response to the problems of city planning be realized? Increasingly, city planners are coming to look upon the public schools as the best long-range vehicle for achieving this purpose.

The report which follows represents a stock-taking effort. It is hoped that the survey will itself be a preface to the development of broader and better-integrated programs of city-planning education in our public schools.

More than half our large cities recognize the subject in the public-school curriculum

WE KNOW that a few city-planning agencies carry on extensive educational activities with public schools. Many other agencies make planning publications available to the schools as they are published.

But just how extensive are the courses and other planning activities of the public schools? At what level is planning introduced to students; how is the subject presented; and how can future programs benefit from the experience which now can be brought to bear on this problem?

These and other questions led to the present survey of city-planning programs in the public-school curriculum. The study was carried on in the spring and summer of 1950.

THE AMERICAN CITY has occasionally published reports bearing on this problem, and last year *The High School Journal* devoted the entire March-April issue to "Planning and the Schools." In these articles, Mary Margaret Carroll, Planning Technician with the Tennessee State Planning Commission, reported on her study "to determine the extent and nature of the educational activities of planning agencies with the public schools." Miss Carroll summarizes the results of her questionnaire survey with the following statement:

> The results of this survey showed few extensive projects, but, for the most part, a definite desire to strengthen this phase of agency activities.[1]

Of the fifty-two official agencies and citizens' organizations polled, only five cities have going programs of real significance. Others group themselves about stages of development ranging from the placement of schools on their mailing lists to the preparation of classroom texts. Attitudes toward educational activities were equally varied. Some obviously considered them outside their area of operation or responsibility, while other struggling young agencies felt that if they could only live long enough to get such programs under way all would be safe.[2]

The "five cities" cited by Miss Carroll are Cleveland, Richmond (Va.), Detroit, San Francisco, and Philadelphia.

Present Study Described

In the present study, a questionnaire similar to Miss Carroll's was sent to Boards of Education in the ninety-two cities listed by the U. S. Bureau of the Census as having 100,000 or more inhabitants in 1940. Sixty-eight, or 74%, of these cities responded. Thirty-one cities indicate that city planning is included in the public school curriculum. In addition, 14 other cities report that some attention is given the subject, though it is not formally a part of the curriculum. Table I presents a breakdown of the cities responding to the survey.

Thus, 66% of the cities responding recognize, in some way, the subject of city planning in their public schools. Even if it is assumed that the 24 cities not responding to the questionnaire have no city planning in their schools, the figure remains very close to one-half (49%).

Of all cities contacted, Philadelphia has by far the most comprehensive and integrated program of city-planning education. Philadelphia appears to have dealt satisfactorily with nearly every problem cited by other cities as obstacles to their programs.

Very good programs are also found in Atlanta, Baltimore, Boston, Cincinnati, Cleveland, Detroit, Flint, Los Angeles, Louisville, Providence, Richmond, San Francisco, and Seattle. The programs in these cities are not as broad as Philadelphia's, though each of them has special merit in the use of various techniques and at different grade levels.

It must be emphasized that even these outstanding programs are by and large quite narrow and leave much to be done towards further integration of city planning into the curriculum.

A summary of the responses to the questionnaire is presented in Table II.

Negative responses (cities indicating "No" to question A) were not asked to complete the rest of the questionnaire, except to indicate whether city planning had ever been part of the curriculum and further to indicate whether definite plans for initiating a program are under way. Thus, the 13 cities reporting "plans for enlargement of such a program as a part of a long-range program" include two negative respondents who indicate that plans are under way for initiating such a program.

Answers were not given to all of the questions by many of the respondents. This should be kept in mind when interpreting the summary table. Also,

[1] Carroll, Mary Margaret, "Planning and the Schools," *The High School Journal*, Vol. 32, March-April 1949, No. 2, p. 50.

[2] *Ibid.*, p. 56.

the number of answers to a particular question need not add up to the number of cities replying. Thus, in tabulating the grade levels, several grade levels may be included in a given school system.

Programs New

Nineteen cities indicated the "number of years the program has been functioning." 10 cities reporting programs which have been functioning 5 years or less, and 9 cities ranging from 6 to 20 years. Chicago reports programs at the 8th- and 12th-grade levels, the latter having been inaugurated during the past year.

Cooperation

Cooperation between the schools and planning agencies appears to be excellent. Respondents praised local planning agencies for generous assistance and leadership.

Initiative, however, appears to lie with the schools. In some instances we suspect that Table II may not present a true picture in this regard. In any case, planning agencies should not neglect the opportunity for initiative if further progress is to be made.

TABLE I

Cities Replying to Public School Planning Education Survey

Akron	*Newark, N. J.
Albany	New Bedford
*Atlanta	New Orleans
*Baltimore	*New York
*Boston	Norfolk
Buffalo	†Oakland
Cambridge	Oklahoma City
Camden	†Omaha
Canton	*Paterson
*Chicago	*Philadelphia
*Cincinnati	†Portland, Ore.
*Cleveland	*Providence
Columbus, Ohio	Reading
*Dallas	*Richmond, Va.
*Dayton	Rochester, N. Y.
Denver	Sacramento
†Des Moines	*St. Louis
*Detroit	*St. Paul
†Duluth	*Salt Lake City
*Erie	*San Antonio
*Flint	*San Francisco
*Fort Worth	†Scranton
†Gary	*Seattle
†Hartford	South Bend
*Houston	†Springfield, Mass.
Kansas City, Kans.	*Syracuse
*Kansas City, Mo.	Tacoma
Knoxville	†Toledo
†Long Beach	†Trenton
*Los Angeles	†Utica
*Louisville	*Washington, D. C.
Lowell	*Wichita
Memphis	†Yonkers
Nashville	Youngstown

* Indicates those cities which, according to the survey, include city planning in the public-school curriculum.

† Indicates those cities which give some attention to city planning, though it is not officially a part of the curriculum.

TABLE II

Summary of Replies to Public School Planning Education Survey

	Yes	No
A. Is city planning included in your curriculum?	31	37
a. City planning is not a part of the curriculum, but some attention is given the subject	14	23
B. Do you have plans for enlargement of such a program in your school system?	18	37
a. Within the next year or two	10	
b. As a part of a long-range program	13	
c. Both (a) and (b), above	5	
C. Who initiated the planning program in your schools?		
a. The schools	25	
b. City-planning agency	12	
c. Other	5	
d. Collaboration of two or more of the above	11	
D. Materials used in courses which include city planning:		
a. Course outlines	20	
b. Books and pamphlets	19	
c. Films	15	
d. Maps and posters	18	
e. Other	17	
E. How are teachers prepared for teaching city planning?		
a. Workshops, discussion groups	10	
b. Extension courses, in-service courses	2	
c. Visits to plan commission and other agencies	5	
d. Special lectures for teachers on the subject	4	
e. Teachers and/or Board of Education representatives meeting with the planning groups	13	
F. At what grade levels has the study of city planning been introduced?		
a. First	3	
b. Second	4	
c. Third	5	
d. Fourth	5	
e. Fifth	5	
f. Sixth	6	
g. Seventh	7	
h. Eighth	10	
i. Ninth	15	
j. Tenth	3	
k. Eleventh	8	
l. Twelfth	16	
G. What courses now include the study of city planning?		
a. Social studies	45	
b. General education (throughout curriculum)	4	
c. Art and/or architecture	2	
d. Initiative of teacher only (no courses listed)	2	

City planning enjoys a large number of interesting and ingenious methods of presentation. There are a few good texts, such as *Building Atlanta's Future*,[2] *Surging Cities*,[4] (Boston), *Living Together in Seattle*,[5] *Cincinnati—Then and Now*,[6] and *Metropolitan Los Angeles: One Community*.[7] However, most cities rely on pamphlets, models, movies and slides, field trips, etc., for the study of city planning.

"Wacker's Manual of the Plan of Chicago" was one of the earliest and outstanding books published for the study of city planning in public schools.[8] This book was used in the Chicago public schools from 1912 through 1924. Use was limited to the 8th grade and at the option of each teacher. Within these limitations, however, it is believed to have had a very favorable impact on planning activities in this city.

While Buffalo indicated that city planning is not included in the public-school curriculum, it should be noted that the text, *Buffalo, Your City*, includes a brief discussion of planning in Buffalo.[9] Also, no response was received from San Diego in the study, although in 1938 a mimeographed booklet, entitled *City Planning in San Diego*, was used in that city's public schools. A second edition was prepared in 1940, but we have no information regarding the extent of its use.

Maps can be used to particular advantage for the study of city planning, both by teachers and students. In Flint, Mich., small maps are mimeographed and students are encouraged to study the physical features of the city by preparing their own maps. Cleveland reports that the Cleveland City Planning Commission makes available "base maps for any community in Cleveland, accompanied by an outline of procedure for organizing neighborhood planning and rehabilitation."

The most common materials and techniques listed under the "other" category in Table II are field trips, visits to plan commissions and other agencies, models (some prepared by students and some by planning agencies) and assembly speakers on the subject. A few schools also listed radio broadcasts, usually over a public school station.

Nearly every school system which includes city planning in the curriculum

[2] Ivey, John E., Jr., Demerath, Nicholas J., and Breland, Woodrow W., *Building Atlanta's Future*. Chapel Hill, The University of North Carolina Press, 1948.

[4] McCrosker, Theodore T., Blessing, Charles A., and McKeever, J. Ross, *Surging Cities*. Greater Boston Development Committee, Inc., 1948.

[5] Peterson and Davenport, *Living Together in Seattle*. Now in preparation, to be published by the Seattle Public Schools.

[6] Hessler, Iola O., *Cincinnati—Then and Now*. Published for Cincinnati Schools by The League of Women Voters of Cincinnati, 1949.

[7] Scott, Mel, *Metropolitan Los Angeles: One Community*. The Haynes Foundation, Los Angeles, 1949.

[8] Moody, Walter D., *Wacker's Manual of the Plan of Chicago—Municipal Economy*. Especially prepared for study in the schools of Chicago, under the auspices of the Chicago Plan Commission. First published in 1912, the fourth edition of this manual was published in 1920. Each successive edition incorporated the progress in city planning which had been achieved since the prior edition.

[9] Glazier, Alice Ennis, and Rundel, Edwin F., *Buffalo, Your City*. Buffalo, 1947.

does so in social studies courses, i.e., civics, community problems, American problems, etc. A few schools introduce the subject in other courses (art, architecture, etc.). Philadelphia appears to be the only city which treats the subject as it applies throughout the curriculum, though emphasis is laid on social studies even in this case.

Educators and planners agree that the latter method, i.e., introducing city planning as it applies to each subject in the curriculum, is the most thorough and desirable type of city-planning education for our younger citizens. Viewed in this light, city planning can become, as Miss Carroll has expressed it, "a meaningful core about which the curriculum may grow to be more integrated and effective."

Course levels for the study of city planning are concentrated largely in the 8th through the 12th years of school, though a few outstanding programs are concentrated in the lower grades, notably in San Francisco and Philadelphia.

Chief Difficulties Encountered

Though a wide variety of techniques is employed for the presentation of city planning, one of the chief difficulties encountered in treating the subject is related to problems of materials and techniques of presentation. The two difficulties most frequently cited by respondents are: (1) lack of classroom materials, for students and teachers, and (2) an overcrowded curriculum.

Therefore: These facts further emphasize the importance of incorporating city planning into existing courses rather than introducing new courses on the subject.

These facts lead also to the conclusion that teacher-training is the most important single factor in the whole problem of city-planning education through the public schools. Relevant to this problem, we find in Table II that teacher preparation is usually carried on through discussion meetings of teachers and/or other board of education personnel with representatives of city-planning agencies. Workshops and discussion groups, which 10 cities list, nearly always also include participation by professional planners.

None of these methods appears to be very thorough, with the exception of Philadelphia's program, which includes "in-service courses, workshops, excursions (Know-Your-City trips) and a full-time curriculum assistant for planning" whose job it is to maintain a free flow of information between planning agencies and the schools and to insure the fullest possible cooperation between these agencies in the promotion of their mutual programs.

Wichita also reports a winter seminar class in "backgrounds of local government" which many of their teachers have taken. This course includes a treatment of local city planning.

Respondents were enthusiastic over the results of bringing city planning into the classroom. They expressed keen interest in learning what other schools were doing and how the experience of others might benefit local efforts.

A sampling of comments regarding "the chief benefits of your planning program," as requested in the questionnaire, reveals better than any other portion of the survey these subjective reactions as to the value of such a program:

Atlanta: A unified and all-out effort of all agencies, including the students in the schools of Atlanta, working together for the benefit of future Atlanta.

Cincinnati: An increasing awareness on the part of the citizens at large, as well as of pupils, as to the value of the Metropolitan Master Plan to Cincinnati.

Cleveland: Active civic participation by citizens too young to vote; development of support for the idea of city planning.

Los Angeles: Young people are beginning to realize that to have good transportation, homes, parks and playgrounds, civic and cultural benefits, they must work for them.

Philadelphia: First-hand learning with all concerned; emotional motivation for real learning and social action.

Providence: Our course in civics is a laboratory course, using the City of Providence as the laboratory.

These and many other comments reflect the enthusiasm with which city planning is viewed by those who have participated in this type of program.

There are other indications of increasing interest in this field. The City Planning Commission of Minneapolis recently circulated a letter to agencies suggested by the American Society of Planning Officials, requesting information and materials in the interest of ultimately "developing a program on city planning in the public schools of this city."

Recently, the Chicago Plan Commission has cooperated with the Board of Education in preparing materials for revision of the Social Studies Curriculum. This type of collaboration is encouraging. We hope to broaden the scope of our work together in Chicago to include further integration of the curriculum through city planning.

The real importance of lay education for city planning lies in the fact that, in progress achieved, the technical phases of city planning have far outstripped its social phases. Much needs to be done to lessen the gap between these two phases of planning. The schools of our nation represent an opportunity in this direction.

EDITOR'S NOTE: For recent articles on planning education in the public schools, see the following issues of THE AMERICAN CITY:

Bologna, Sando, "Waterbury Children Learn City Planning First Hand," September 1945, p. 129.

"Buffalo Prepares for Third Annual Civic Planning Week," March 1947, p. 91.

"Buffalo Planning Association Sponsors Textbook on City," January 1948, p. 105.

"Louisville Students Study City Planning," March 1949, p. 116.

Scott, Mel, "Third Graders Become City Planners in San Francisco," September 1949, p. 112.

Carroll, Mary Margaret, "Planning Courses in the Public Schools," December 1949, p. 107.

Slum Clearance in Denver

THE City of Denver has set in motion a slum-clearance, or urban-redevelopment, plan that contemplates replacement of 22,500 substandard dwelling units at a combined city-federal cost of $3,372,810, under the direction of William F. Henninger, city planning director, and his assistant, Maxine Kurtz, principal planner.

The city has 21 persons employed on a final survey, the cost of which will be defrayed from a $20,000 loan extended by the United States Housing and Home Finance Agency.

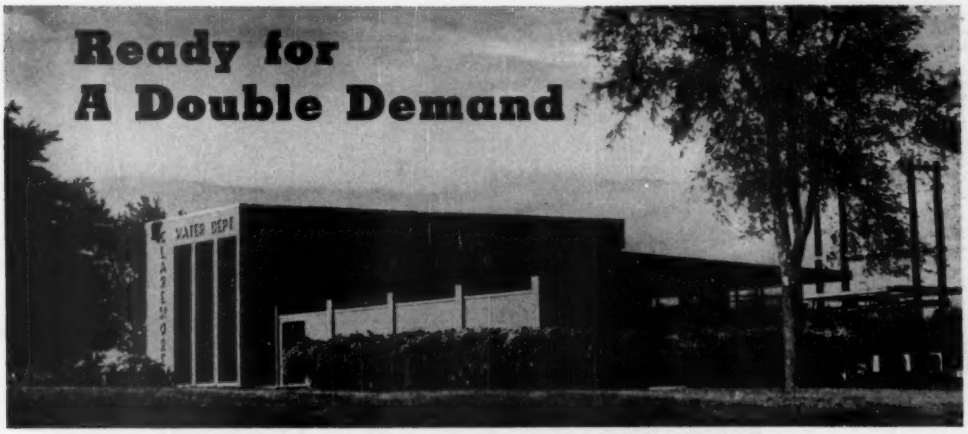
The over-all plan will designate and survey one or more clearance areas; prepare a plan for future land use and financing; acquire buildings and land and clear the latter; rehouse displaced persons; sell or lease cleared land for development by private investors, and consider installation of municipal improvements.

The city will pay one-third of the project cost and the Federal Government two-thirds.

The 22,500 dwellings represent 5.3% of Denver's 118,000 homes and apartments. On a per capita basis, Denver's principal slum areas receive seven times their share of general relief funds; three times their share of police calls; five times their share of attention from city sanitation services and Denver General Hospital, and contributes from 40% to 400% fewer tax dollars to the city treasury than equivalent areas.

Rehousing of persons to be moved from the areas is regarded by Director Henninger as the project's major headache. Just how big a headache it is will be known after the survey is completed, probably sometime in late January or early February. The city is planning about 6,000 public housing units, but nor more than about 1,200 will be completed by the end of 1951.

Ready for A Double Demand



Claremore's filter plant is built on attractive bold lines typical of the Southwest.

Claremore, Okla., builds a modern water-filtration plant able to meet twice the present requirements

CLAREMORE became famous by giving this nation one of its greatest humorists — Will Rogers. It retains importance by serving one of the most productive agricultural and livestock regions in the nation. It is able to serve in this important capacity by keeping its water supply well ahead of the demands placed on it.

The first key to the solution of this water-supply problem is an adequate source, made possible through Lake Claremore, a man-made reservoir impounding enough water from the supplying river so that it can take care of twice the city's needs. The next requirement is adequate treatment facilities, made possible by a new filtration plant. The design of this was based on a flow of 2 mgd, or a full 100% over the present daily needs. Pumping capacity was built for a peak of 2,000 gpm, adequate for any anticipated fire needs.

For safety's sake, the new filter plant was placed high enough to avoid flood waters and to permit gravity flow of water into the settling basins. The plant connects with Lake Claremore through a new 16-inch cast-iron pipeline. A Simplex venturi meter measures the water after it enters the building.

The new plant provides both purification and a certain amount of softening. It uses three Wallace and Tiernan gravimetric feeders to supply lime for softening and alum for coagulation. A third feeder is held in reserve in case one must be taken out of service. The design also anticipates the use of a phosphate, such as Calgon, in the event that corrosive water appears to be a problem. The amount of chemicals applied is controlled automatically according to the amount of water flowing into the plant.

The water carrying the chemicals is received by a Dorr Clariflocculator designed to produce the floc and allow it to settle with the sediment. The water level in the basin is controlled by a special mechanism perfected by Bert Sprangel, Superintendent of Utilities.

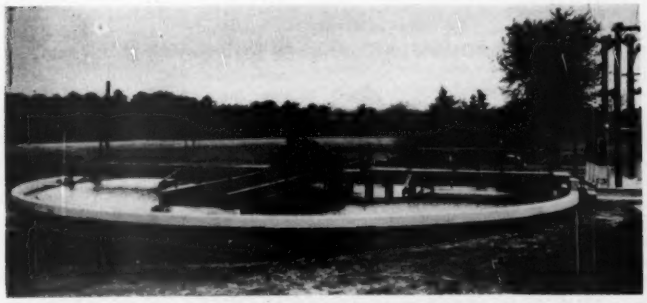
The "Sprangel" basin-level control actuates a hydraulic valve on the influent line. The filters control the level of water in the settling basin and are equipped with high-level water shut-off from the clear well.

The water goes to the filter plant. The filters are equipped with Palmer surface wash to aid in keeping them clean and to prevent encrustation on the Anthrafilt from the softening process. The filters use American Cast Iron Pipe fittings throughout. The use of Anthrafilt or finely ground anthracite coal, instead of sand, was adopted since records indicate that it requires less water for backwashing. The filters use Simplex valve and meter-control mechanisms.

The pumps consist of three units with a total capacaty of 4,000 gpm. One has a capacity of 2,000 gpm and can be controlled remotely from the municipal electric plant, or locally. The other two are each 1,000-gpm pumps, subject to local control. All are single-stage and have Valve and Primer Corporation automatic primers and Clayton Valve Company surge suppressors at the discharge points.

The 2,000-gpm pump delivers the water to the distribution system under most conditions. The remote-control feature allows the operator at the electric plant to turn it on in case of fire at night when one of the smaller pumps is running.

The plant was designed in the offices of the Collins Engineering Company of McAlester, Okla., consulting engineers. The plans were approved and general supervision of the work was exercised by Bert Sprangel, Superintendent of Public Utilities, Claremore, Okla.



PHOTOS BY DON BLAIR, CLAREMORE, OKLA., ENTERED IN THE CAST IRON PIPE RESEARCH ASSN. CONTEST

The Clariflocculator has a level control developed by Superintendent Sprangel.

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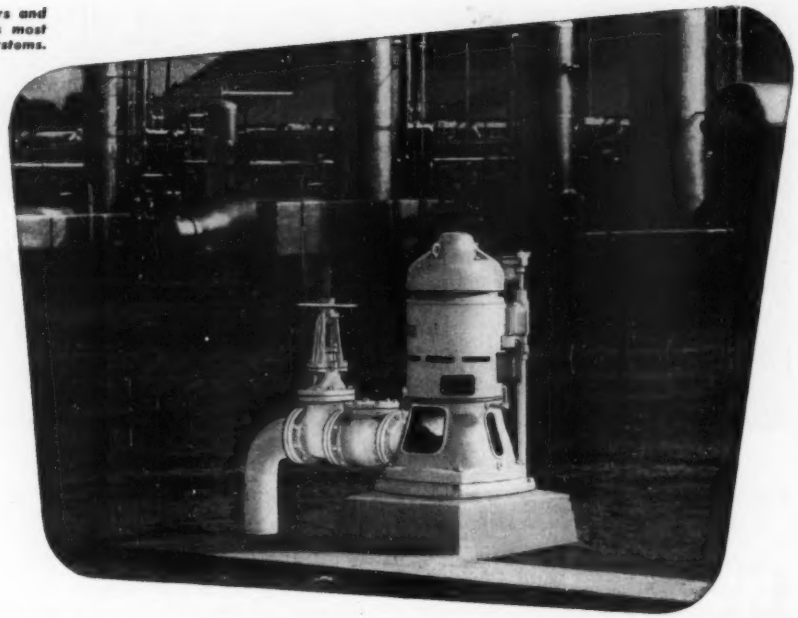

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How Can We Disperse Our Large Cities?

(Part II)

By DONALD and ASTRID MONSON *

SPEEDING up expressway programs and adapting them to the needs of atomic defense can greatly help the city survive atomic attack. At present the great cities depend largely upon surface roads, which will be completely unable to handle the rush to get out of town in the event of a warning or attack. Without broad, limited-access highways — preferably depressed — it is likely that traffic will come to a standstill, but with a network of such highways it may be expected that while some access points will become jammed, the main traffic streams can be kept moving.

Expressway Plans Need Re-study

While most big cities in this country have plans for limited-access highway grids, it is imperative that all such schemes be re-examined in the light of conditions under atomic attack. Most of the present programs suffer from the high cost of urban land, so that the right-of-way of many of the limited-access arteries upon which construction has been started in the past few years is too narrow to form an effective firebreak or shelter belt. To place an expressway in an open cut whose borders slope as steeply as possible does not result in adequate width. While from the defense point of view the wider the better, the open land on either side of the roadways ought to be at least 300 feet wide, so that the total right-of-way is over 600 feet—a full city block—in width. With this depth the borders of the freeway would begin to act as firebreaks in all but the very center of the blast. Moreover, they could serve as places of refuge for the many who will only be able to reach the outlying areas by foot.

There must be room for footpaths, since vehicles will not be available for all refugees from the devastated area. There must also be enough width to the right-of-way so that rescue squads can find space to move against the onrush of outward traffic; there must be space into which to push the debris of collapsed bridges so as to clear the road quickly; there must be space so that the debris from bordering buildings will not obstruct the right-of-way.

Expressway planning must also consider the needs of ordinary mass transport uncomplicated by atomic attack. We seem to have forgotten one of the widespread restrictions on civilians during World War II, namely, gasoline rationing. Should a large-scale war break out, the same can be expected again. In order to be certain that the metropolitan region can continue functioning in this eventuality—an eventuality more probable than an actual atomic attack—all new express highways should provide space for interurban rail transport so as to lessen our dependence upon high levels of civilian gasoline consumption. Actually, directing our increasing metropolitan population into satellite towns will make it easier to operate our urban transport systems on a paying basis, since the density of population in the new towns can be planned so as to furnish enough commuters to make public transport profitable in the outlying sections. In Stockholm today, for instance, one of the prime factors in locating new suburban districts is the necessity of keeping the public transport system solvent; each new settlement is plotted so as to insure an adequate number of customers. It is time cities in the United States did likewise.

Effect on Slum Clearance

Such a system of express highways cut through the built-up mass of our great cities will greatly increase our present slum-clearance and relocation programs. For example, in Detroit the initial program of slum clearance and public housing is displacing 3,300 families, but the first stages of the expressway program—including only construction already started — will have displaced over 5,000 families by the end of next year. If the expressway program is speeded up and the rights-of-way widened, it is likely that the present slum-clearance program, directed primarily at removing slum dwellings and replacing them with modern housing, will have to be stopped or severely curtailed. The job of housing those in the expressway rights-of-way, plus the housing of incoming defense workers, will probably take up all the materials and labor which can be allocated to urban home and highway construction.

V. Rebuilding the Central City

Even with direction of all new building in metropolitan areas to satellite towns and the opening up of transport lines through an expressway-construction program, the bulk of our big-city populations will still be living in the central built-up sections. Open spaces 600 feet wide are not much of a protection against atomic explosion and resulting fires. Hence the next step after cutting expressways through the central cities ought to be the widening of the edges of the rights-of-way by further relocation of families living along them, using the space for much-needed park and recreational areas until the increased width begins to offer more adequate protection.

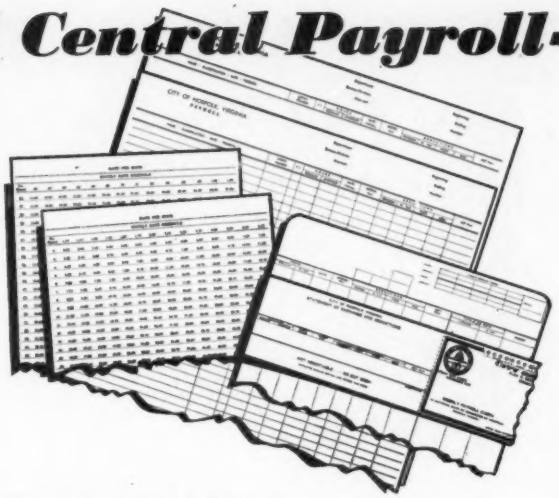
The actual opening up of the mass of the city could begin with the direction of all replacement construction in designated areas to the satellites. Rebuilding of the remaining areas should be controlled until the population of the central communities falls to less dangerous levels, by planning a population density approaching that in the satellite towns. The ultimate goal would be the transformation of the central city into a number of more or less self-contained communities with populations of 50,000 to 100,000 each, separated one from another by broad belts of open space, which might be used for either parks or allotment gardens.

This procedure would be in marked contrast to the present sorry state of things whereby both private redevelopment with public aid, under Title I of the Housing Act of 1949, and public housing under the Act's Title III, are often planned at higher densities by far

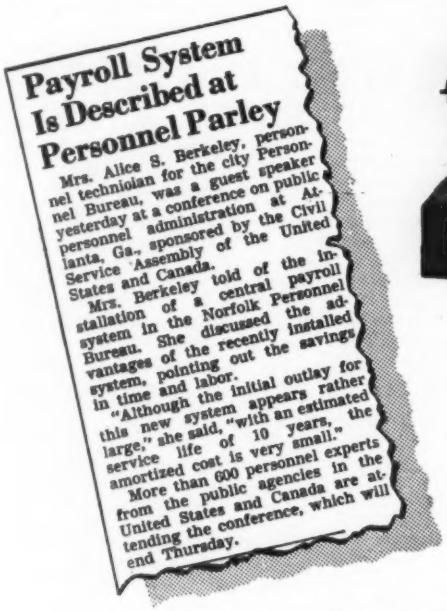
* The authors of this article have long been connected with housing and city planning activities in the City of Detroit. Donald Monson at present is a city planning consultant, and his wife, Astrid, an economist on the staff of the Detroit Housing Commission. Part I of this article appeared in the December 1950 issue.

Mechanized Central Payroll–

for 2400 city employees of Norfolk, Virginia helped by



UNDERWOOD SUNDSTRAND PAYROLL MACHINE



Payroll System Is Described at Personnel Parley

Mrs. Alice S. Berkeley, personnel technician for the city Personnel Bureau, was a guest speaker yesterday at a conference on public personnel administration at Atlanta, Ga., sponsored by the Civil Service Assembly of the United States and Canada.

Mrs. Berkeley told of the installation of a central payroll system in the Norfolk Personnel Bureau. She discussed the advantages of the recently installed system, pointing out the savings in time and labor.

"Although the initial outlay for this new system appears rather large," she said, "with an estimated service life of 10 years, the amortized cost is very small."

More than 600 personnel experts from the public agencies in the United States and Canada are attending the conference, which will end Thursday.

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than existed in the overcrowded slums which the new housing replaces. Furthermore, instead of tending to raise the value of slum property, so that the public authority has to bail out owners of slum property at excessive prices, a program of planned dispersal and rebuilding at lower densities would result in vacancies in slum areas, thus permitting enforcement of health and occupancy standards already in our municipal statutes, the reduction of the present indecent profitability of slum property, and a resultant drop in its value to the point where the public authority can assemble land for rebuilding at a reasonable price. Thus the funds available for slum clearance would go much farther than they can at the present time, and much larger areas could be cleared at the same cost.

Effective Coordination of Normal Procedures

While the time sequence for the decentralization program outlined here calls first for the direction of new construction to satellite towns, second for the cutting of expressways through the city, and finally for the rebuilding of the central city where the majority of metropolites live, actually this time order does not mean leaving the inner city to its fate for an indefinite time. The steps merely formulate a policy which, once adopted, is followed by the making of a plan of redevelopment and relocation—a matter of months only—after which the three techniques are applied simultaneously.

It must be remembered that a large percentage of the householders directed to the new satellite towns will be families who would move to the suburbs anyhow; the expressways would have been built in time even without the danger of atomic attack, and the families living in the rights-of-way would have had to be relocated; much of the housing in the older built-up areas of the city will have to be torn down progressively during the next few decades. What is being advocated here is that these normal procedures be coordinated in such a way as to be most effective from the point of view of defense and most economical from the point of view of the strained national budget.

As a matter of fact, the rebuilding of the central mass of the metropolis will probably keep pace with the construction of the satellite towns, since there are real economies in utilizing the streets, sewers, water mains, and other utilities which the central city has in overabundance. The only new factor introduced into the building icture is a plan. The rate of building will be determined by the amount of labor and materials the economy can spare for construction, but if we can continue building at even the rate of a million dwellings a year, and half this number can be applied to the rebuilding of our large cities, 30 years will see them transformed into new communities whose density and amenities closely approach those found in the outlying satellite cities. Thus, the uneconomic "flight from the city" will be halted and the very real advantages of the metropolis will be combined with the safety and pleasant life of the satellite town.

Tools at Present Available

While little additional legislation other than regulations similar to those used during the last war will be necessary to effectuate the building of special new towns of the atomic-city classification or to distribute war contracts to small cities, the planned dispersal of our metropolitan centers does involve considerable departures from our customary ways of doing things. However, even now, where state laws permit, cities can, under Title I of the Housing Act of 1949, obtain loans from the Federal Government with which to purchase "open land necessary for sound community growth." The current interpretation of this provision is that such vacant outlying land must be utilized primarily for the relocation of families whose homes have been demolished in the course of slum-clearance operations. A national policy of population dispersal as a defense measure would certainly seem to justify the use of federal funds under Title I for the acquisition of sites for satellite towns which are an integral part of a program of atomic defense.

There are other tools already available to encourage the channeling of new construction in metropolitan areas into outlying satellite towns. When it is recalled that the vast bulk of the home building which has taken place during the past several years in such areas has been dependent upon government financing through the insurance of mortgages by the Federal Housing Administration, the Veterans' Administration, the Reconstruction Finance Administration, etc., it would seem that the government has a powerful incentive to direct almost all the new building in the next few years into the designated satellite towns according to plan. The fact that the country is on a war footing will only serve to make the banker even more reluctant to finance building which is not in some way insured against loss by the Federal Government.

There can be little question that the designation of the site of a satellite town, its planning, and acquisition of the necessary land must be by a public authority. It is inevitable in the process that some land will be permitted to be developed but that other land will have to be designated to be held in agricultural use. The second point is as important as the first if the nation is to achieve the full benefits of safety and economy from the program. The choosing of sites for new towns must be without reference to present owners, and development must not be held up by protracted negotiations or price-gouging. The only way to avoid these evils is to assemble the land required by condemnation—which means that the assembly of land must be by a public body. American law does not permit a private person or corporation, aside from certain public utilities, to acquire land by condemnation. State laws will, in many cases, have to be amended to permit condemnation of land outside municipal borders for the development of satellite towns. Such towns can later be annexed to the parent city or a metropolitan government set up to take in the entire area.

Legal Problems

During World War II where such satellite-type projects were built—i.e., Willow Run—they were built by the Federal Government under the Lanham Act. Under the provisions of the Housing Act of 1949 the Government leaves the planning of projects and the condemnation of the specific land needed to the local government, the federal agency merely reserving the right of review and setting of standards as a condition of financing. Where state laws permit, this procedure will not only relieve the Federal Government of decisions better made locally, but will also keep the whole process on a more democratic basis. It might be mentioned here parenthetically that the question whether the states have the right to permit their cities to develop land has been decided in the affirmative by the U. S. Supreme Court (*Green* vs. *Frazier*, 253 U. S. 233, 40 Supreme Court 499), the Court's decision reading:

> If the state sees fit to enter upon such enterprises as are here involved, with the sanction of its Constitution, its legislature, and its people, we are not prepared to say that it is within the authority of this Court, in enforcing the Fourteenth Amendment, to set aside any such action by judicial decision.

During the past decade some states have already created special urban-redevelopment corporations under state law to rebuild the central slum areas of their metropolitan centers. Since the Housing Act of 1949 provides aids for the acquisition of vacant land, these redevelopment corporations could be the pattern for special development corporations entrusted with the task of

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***Written* by Alberto Baldocchi**

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building the satellite towns. Where state legislatures do not act in time, considerations of national defense might justify the Federal Government's stepping in and sponsoring the building of the towns directly, just as Willow Run was built under the old Lanham Act.

"Temporary" Housing Wasteful

Our experience with the few "new towns" built during the last war was unfortunate, in that much of the housing was temporary. Ostensibly this was to save critical material, but as it is said that the "temporary" dwelling used upwards of 90% as much critical material as permanent housing would have used, it can be seen that this was poor economy indeed. In a larger sense, labor is one of the most critical aspects of the present situation, and to use it to build homes which will last less than a decade is one of the most wasteful things we can do. This time the new towns should be well designed and built as permanent additions to the nation's housing supply.

The core of this new building can well be public housing, to begin with, at least. Since the passage of the Housing Act of 1949 only a very small portion of the housing provided for under the Act has been started, due partially to the widespread local opposition to public housing organized by the real-estate lobby, and partially to excessive costs. Most of the 810,000 dwelling units provided in the Act could well be erected either in small towns where war contracts will bring sharp population increases or in the sites of new satellite towns as the nucleus of a construction program. In addition, all defense or war housing, legislation for which is already before Congress, should be built either in such small towns or in satellite towns. It ought to be so designed and built that, after the emergency is over, it can be sold to and managed by cooperative associations of the families living in it, so that as the new town grows, a suitable balance can be maintained between public and private housing.

Once a town is begun with an initial construction program by a public authority, the balance of the community can be built through the usual private financing and construction methods, with the one exception that the layout of the lots would have been done by public planners on the basis of modern city planning principles; parks would be reserved in ample measure, not omitted as now; the streets, schools, and sewers would keep pace with home building. There is nothing in this proposal which excludes private-home ownership; on the contrary, a home in such a planned satellite town would be a far safer investment and yield better living than what is offered in present-day uncontrolled suburbia. Only the real-estate speculator will suffer; every one else will gain—a reversal, at least, of the usual situation.

It cannot be denied that such a program means a revolution in land-development concepts and practices in our metropolitan areas. In the transition from a system in which private speculators — inherently responsible to themselves alone—determine where development should take place, to a system in which public bodies — inherently responsible to those who elect them—plan all new development, a certain number of people will inevitably suffer hardship. In the absence of public planning the speculator was doing a necessary job, albeit badly. In doing the job he would buy land and pay taxes while it ripened—i.e., until such time as the growing city needed the land for development. As the time for building grew near, taxes would rise and roads, utilities, and other improvements would have to be put in. In the change-over to public planning, with large areas permanently kept out of development, a considerable portion of these private expenditures would necessarily prove abortive.

During the last war this question did not arise, since the war involved only a temporary halt in construction and, as soon as it was over, the speculative development in the suburban areas could be and was resumed. Now the situation is different. We are planning for a protracted period, a period which may drag on for decades.

Land for Recreational Use

Thus, logically, we should demand that not only should all new construction in metropolitan areas be directed to the new satellite towns, but also that, apart from minor rounding-out of existing built-up sections, all other land in such areas should be kept permanently in agricultural or recreational use. If this is done, those who have in good faith invested money toward the development of such land before the new system went into effect will lose their investment unless some method is found of compensating them.

In other democratic countries where this revolution in urban land-development concepts and practices has taken place, the governments have compensated such owners. This took place in the Netherlands as far back as 1901; in Sweden it began with the acquisition by the cities of vast land reserves 30 years ago.

In the post-World War II experience of Britain we find still another example. Here, under the Town and Country Planning Act of 1947, Parliament appropriated the sum of £300,000,000 to alleviate the "hardships" suffered by those who were caught in the transition. Under the act the county governments are required to make plans for the development of their urban areas which, in turn, are reviewed by the Ministry of Town and Country Planning and revised at least once every five years to keep them up-to-date. All development must now be in conformity with these plans. No property was nationalized, but the right to develop land—i.e., to change its use from that on the day the Act went into effect—was taken by the State.

Some similar procedure is called for in this country if we too are to change to a system of urban expansion under the control of public authorities. If we do not, the pressure for the relaxation of controls to permit a return to unplanned development will be increased every time the international situation seems to quiet down.

Conclusion

This approach to the problem of making our cities more secure against the atomic bomb takes into account the limitations of time and of our national economy. It disturbs our customs as little as is consistent with achieving the maximum safety from atomic attack. Wholesale dispersal of our metropolitan centers is Utopian; but we can channel such production as is possible to small cities and direct all new building in our metropolitan areas to a system of planned satellite towns, together with accelerating our urban expressway programs and reducing the population density in our central cities.

And if the bombs do not fall?

Then we shall be fortunate indeed. In five years, if building continues at the same rate as in the past year or two, we shall have 300 new garden cities of 50,000 people each; within a third of a century we shall have transformed our cities. Our new cities would be on a human scale, designed for pleasant neighborly living, ideal places for the nurture of childen. The new clusters of cities replacing the present crowded and vulnerable conurbations would combine the benefits so far known only in the small city with the urbanity and cultural institutions now found only where great populations may easily assemble. Then shall the present fearful and awful threat hanging over the great city have been turned into so great a blessing that men, looking backward in an age in which atomic power shall have been fully harnessed to peaceful ends, will say that the greatest benefit which flowed from the explosion at Los Alamos was the enforced rebuilding of our urban centers.

SIMPLICITY of AMERICAN METERS

PERMITS FINEST QUALITY AT MODERATE COST

A residential water meter earns $200 to $500 revenue in its lifetime, so ability to earn full revenue is most important. In American Meters, quality and accuracy are unsurpassed. Initial cost is also kept moderate because of the unusually simple overall design.

American Meters have fewer parts, more simple castings than most. This permits the finest materials and workmanship to earn full revenue, without excessive cost.

Users obtain premium performance at competitive price.

BUFFALO METER CO.

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More Than 300 City Managers Attend ICMA Annual Meeting

A TOTAL of 320 city and county managers met at Houston, Texas, on November 26 to 29 for the 36th annual conference of the International City Managers' Association, as compared with 250 managers who attended the 1949 conference at Palm Beach, Fla. Wives and guests brought the total registration to 586. Attending their first ICMA conference were more than 100 city managers, and a special get-acquainted session was held for them on the first day.

At the formal opening of the conference, President Robert W. Flack, City Manager of Durham, N. C., delivered his presidential address. "The first responsibility of city managers," he said, "is to improve their own proficiency on the job and to take all possible steps to make local government more effective. This in turn will result in better government at the state and national levels. . . . Local government is the foundation of democracy; if it fails, democracy will fail." Mr. Flack also called on the city managers to concern themselves more and more with economic and social problems.

Three general sessions were devoted to the management aspects of the city manager's job. One afternoon was devoted to current problems in public safety at which four specialists presented brief addresses at a general session. Following the general session, these specialists served as consultants at four concurrent discussion sessions on fire service, police administration, traffic and parking, and civil defense.

Top-Interest Sessions

The population-group sessions were as usual of top interest to the managers. There were five sessions with approximately 60 managers in each group. In addition, the county managers held a special session.

The conference adopted a resolution which called on the President and the Congress "to provide at the earliest possible time a completed federal civil-defense program to the end that the Federal Government, the states, and the cities may take proper action in providing a coordinated plan for the defense of our cities." The resolution stated that city managers are vitally concerned with the need for quickly developing civil-defense plans. Copies of the resolution were telegraphed o the President and to the presiding officers of the Senate and the House of Representatives.

Front row **(left to right): Newly elected vice-presidents G. L. Opper, Riverside, Ill.; Ross Taylor, Oklahoma City, Okla.; and Steve Matthews, Lubbock, Texas; newly elected president Leonard G. Howell, Des Moines, Iowa; newly elected vice-presidents R. M. Cooksey, Thomasville, N. C., and Lyman S. Moore, Portland, Maine; and Clarence E. Ridley, executive director.** ***Top row*** **(left to right): past presidents John P. Ames, Ames, Iowa; J. R. French, Verdun, Quebec; and C. A. Harrell, Norfolk, Va.; retiring vice-presidents G. H. Palmes, Fort Collins, Colo.; and Clarence H. Elliott, Jackson, Mich.; retiring president Robert W. Flack, Durham, N. C.; retiring vice-presidents J. A. Raffield, Sumter, S. C., and L. J. Houston, Jr., Fredericksburg, Va.; and past presidents Roy S. Braden, Richfield, Wash., and Don C. McMillan, Pasadena, Calif. The only board member not present was retiring vice-president Carleton F. Sharpe, of Hartford, Conn., who was called back to his city because of the big wind storm.**

The third day of the conference opened with the annual business meeting of the Association, at which Leonard G. Howell, city manager of Des Moines, was elected president. Five vice-presidents also were elected: R. M. Cooksey, Thomasville, N. C.; Steve Matthews, Lubbock, Texas; Lyman S. Moore, Portland, Maine; G. L. Opper, Riverside, Ill., and Ross Taylor, Oklahoma City, Okla.

At the annual banquet, the city managers heard an address by Roy L. Miller, executive secretary, Des Moines Taxpayers' Association, on "The Citizens' Stake in Good Government." The attendance cup was awarded to California. President Flack read the names of nine managers who had completed 25 years of manager service during the year and were eligible for 25-year service certificates. Receiving these awards were: T. E. Thompson, Scottsbluff, Nebr.; H. A. Yancey, Charlotte, N. C.; J. C. Biggins, Newport News, Va.; C. A. Eckbert, Hanover, Pa.; J. L. Franzen, Salem, Ore.; E. O. Garrett, Edgeworth, Pa.; C. G. Reiter, Coos Bay, Ore.; Claude A. Renshaw, Miami Beach, Fla., and Paul A. Volcker, Teaneck, N. J.

The Texas City Managers Association, host to the conference, provided entertainment for the delegates, under the direction of G. O. Summers, City Manager of Longview, who presided at the get-acquainted meeting on Sunday evening preceding the formal opening of the conference, where Steve Matthews, City Manager of Lubbock, and president of the Texas Managers' group, welcomed the delegates to Texas.

Attending the conference from Canada were City Managers J. R. French of Verdun, Quebec, and Rene Laberge of Lachine, Quebec; and Louis A. Lapointe, Director of Services of Montreal. Also attending the conference were Mrs. Josefina Rincon, Secretary to the City Council of San Juan, Puerto Rico; Max Adenauer, Economics and Traffic Commission of Cologne, Germany, and son of the West German Chancellor; Walther Hensel, City Manager of Dusseldof, and Franz Schmit, City Manager of Bochum, Germany.

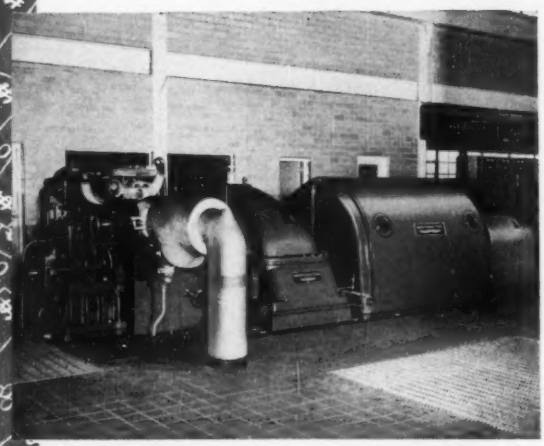
Some of the conference proceedings will be published in future issues of *Public Management* or in report form.

ORIN F. NOLTING,
Assistant Director, International City Managers' Association

FACTS ABOUT THE

Most Profitable Turbine Generator Investment

YOU CAN MAKE...



One of two Worthington 4000 kw turbine generator sets installed in a mid-western municipal power plant, operating on 600 #/G and 750 F.T.T. Steam exhausting to 28" Hg vacuum.

Worthington's Experience and Undivided Responsibility Assure Low Cost, Dependable Power

Builders of steam turbines for over 30 years, Worthington's Steam Turbine Division is backed by the experience and resources of the entire Worthington organization — recognized leaders in the power plant field for more than a century. In view of today's increased turbine pressures and temperatures — and the resulting needs for new and special materials — this vast, combined source of technical knowledge has proved of tremendous practical value in developing turbine design, construction and performance.

Generators Are Worthington's, Too

The generators used with Worthington Turbines are built by a Worthington subsidiary that has specialized in this field for over 45 years. This means that Worthington, as manufacturers of *complete* turbine generator units, assumes *undivided responsibility* for the coordinated design, assembly and performance of these units.

Before shipment, Worthington Turbines and Generators are assembled together *as units* for testing and adjustment — eliminating the necessity for doing this after installation. Also, for installation and service, Worthington turbine specialists and regular Worthington service men are always available from our District Offices throughout the country.

Check These Over!

Adding up, Worthington's matchless power plant experience . . . huge manufacturing facilities . . . long specialization in both turbine and generator manufacture . . . undivided unit responsibility . . . and skilled technical service . . . are the best assurance you can get anywhere of efficient, economical steam turbine power.

Worthington makes turbines in a wide range of sizes and types, each one designed to make steam do more work. For details proving *there's more worth in Worthington*, contact your nearest Worthington representative. Or write to *Worthington Pump and Machinery Corp., Steam Turbine Division, Wellsville, N. Y.*

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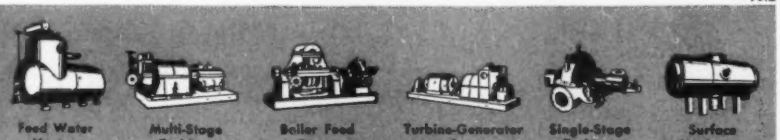
STEAM TURBINES

TO.2

A GREAT TEAM IN STEAM



Liverpool Uses Garbage To Reclaim Land for Promenade

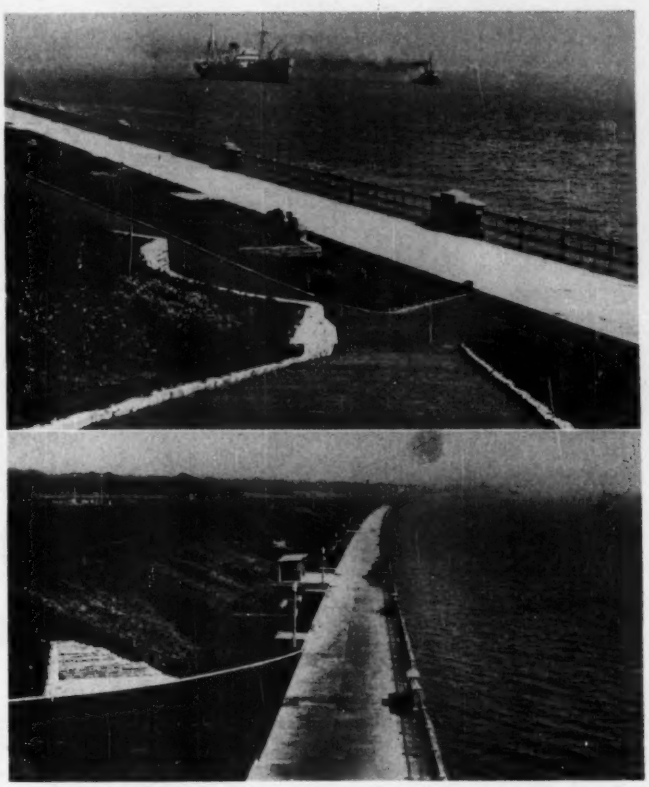
HOW 2,000,000 tons of Liverpool's garbage and waste matter became converted into a major recreational asset to the city was the story told when the Otterspool Riverside Promenade, a 1,350-yard length of wall along the Mersey River, was opened to the public last July. The 43-acre area reclaimed and enclosed by the project originally shelved gradually down from the river bank to low-water level, the whole being submerged at high water. Now it has been transformed into an attractive, landscaped pedestrian walk and adjacent park, not far from one of the city's best residential districts.

The project received major stimulus during the construction of the Mersey Tunnel, when there was urgent need to allow excavated material to be dumped nearby. The building of the enclosing side embankments began in September 1929. The construction of the river-wall proper began in July 1930. The retaining wall was designed to withstand maximum water pressure and wave action from the river and is constructed of mass concrete with precast concrete facing blocks keyed into the main mass of the wall, and all foundations for the wall carried down to rock level, ranging between 12 and 18 feet below the bed of the river.

Ultimate Economy Effected

The wall was completed in 1932 and stabilized against the weight of water in the river with rock and clay. Meanwhile, the area behind the wall was divided into five almost square sections and the work of filling the voids between the original bank of the river and the new wall and embankments began, with domestic refuse being used. This job was completed in 1949, and it has been estimated that the saving in cost by this method of disposal, as against incineration, more than offset the original cost of the construction of the river wall and embankments and the layout of the promenade, paths, and open spaces.

Because of the success of the project, plans have been made to extend the river wall in a northwesterly direction, to provide for the reclamation of an additional 70 acres of land and the tipping of millions of tons of refuse over a period of approximately 30 years. When the work is completed, Liverpool will have a river promenade frontage of two miles, and a sizable addition to its available recreation space.



Otterspool Riverside Promenade at Liverpool, opened to the public last July.

Interpretation on Social Security For Municipal Employees

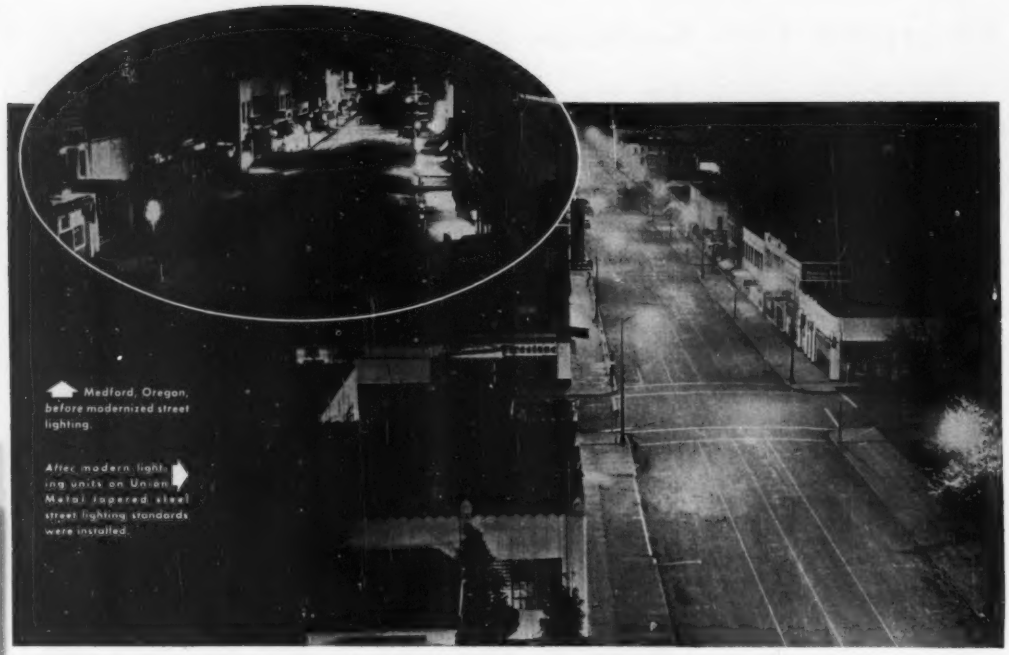
AN important official interpretation has been made regarding provisions in the 1950 legislation for Old-Age and Survivors' Insurance for employees of state and local governments, reports Morton Lustig, author of the article "Social Security Reaches the Municipality," which appeared in the November 1950 issue of this magazine.

In the article Mr. Lustig, a staff member of the University of Pennsylvania's Institute of Local and State Government, reported that a state cannot give municipalities the option of accepting or rejecting membership in the federal system if the state signs an agreement covering its political subdivisions, and that an official interpretation on the subject may be necessary.

The Federal Security Agency has recently given such an interpretation, and an undated publication of that Agency states: *

> Any political subdivision of the State which has arranged with the State for coverage may come under the agreement independently of any other political subdivision. Thus the city of X could cover its workers while the city of Y remains outside the system.

* *Federal-State Agreements to Provide Old-Age and Survivors' Insurance for Employees of State and Local Governments*, An Explanation of Section 218 of the Social Security Act as Amended August 28, 1950—page 7.



Medford, Oregon, *before* modernized street lighting.

After modern lighting units on Union Metal tapered steel street lighting standards were installed.

SEE WHAT A DIFFERENCE *Modern* LIGHTING MAKES

● It's hard to believe until it's seen—what modernized street lighting does for communities. The pictures above show one typical example. Shadowy streets take on new life with new lighting. The entire area gets a lift!

Even more important are these advantages. Night accident rates invariably drop. Safety and security are increased. Traffic flows easier. Nighttime shopping and business get a boost that *lasts.*

When everything's considered, it's easy to see how modernized street lighting pays in many ways. And modernization can be economical, too, with Union Metal tapered steel lighting standards. For these rugged standards, good for a lifetime of service, are easy to install, require little maintenance and are adaptable to any community's business or residential street lighting needs.

Build *your* community's street lighting modernization on sound plans—and include Union Metal tapered steel standards. You'll gain—and *save*—for years to come! For complete information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

New Catalog No. 78 now available. Write for it.

UNION METAL

Monotube Street Lighting Standards

For Greater Self-Reliance in Municipal Affairs

A plea for less dependence on state and national government

By ALBERT D. CASH
Mayor
Cincinnati, Ohio

IN THE United States there has been from the beginning a natural division of authority assigned in part to local government, in part to state government, and in part to the United States. The orbit of local government should contain only the authority to resolve those problems which are of local concern, and that authority should be complete. The function of state government should be that of legislation in matters of common interest to the state as a whole. Likewise, the function and authority of the United States should be limited to those things which the individual states cannot and do not accomplish in the interest of the common good.

The forms of government which we have are adequate and appropriate to the purposes for which they were ordained; but unfortunately, and for a variety of reasons, in many instances they have not been used to advantage.

Many people decry the expansion of the functions of the Federal Government into the areas which it has not heretofore assayed. Among other things, the United States is regularly being called upon to assist local government, particularly the cities, in performing the services and making the capital improvements which they need. Housing, streets, public buildings, airports, and schools are only a few of the examples that might be mentioned.

Unwilling Suppliants

I have at one time or another talked with a great many mayors and other city officials all over the United States, and although all of them are constant suppliants at Washington, there is among them a universal dislike for this procedure. The reason for the liaison between the local governments, creatures of the respective states in which they are, and the United States Government, a creature of all of the states, is not difficult to find. *The states have defaulted in the function which is appropriately theirs.*

Rather generally the states grant the local communities only the minimum authority to resolve local problems with local taxes, and by devices originated in the home community. At the same time they have refrained from, and defaulted in, the exercise of proper state functions.

If the common good is to be served, it will be necessary to divest the Federal Government of many of the activities in which it is now engaged, but that cannot be done merely by wringing of the hands. Indeed, until the states as such assume their proper responsibilities, we may expect the entry of the Federal Government into more and more fields of activity, because the activities in which it engages are those demanded by the people, and they are not being performed by the proper unit of government.

There is a remedy available. Though difficult to execute, it is simply stated. That remedy consists in establishing in local communities the right and the responsibility to meet the local problems with their own money, in their own way, and by their own devices. Each community knows its own problems better than they can be known elsewhere, and it is best suited to forge the proper instruments for their solution. Next, the states must be goaded into assuming their proper responsibilities. The accomplishment of these two objectives will make it unnecessary for the United States Government to enter into many new fields of activity which will undoubtedly be proposed over the years to come, and will enable it to relinquish many of the functions which are needed but which would not now be performed by it except for the vacuum created by the states.

It is my judgment that the reason the states generally have not fulfilled their proper assignment is that their legislative bodies have not been truly representative of the people in the state. The key which unlocks the door to orderliness in government is true and proportionate representation of the wishes of the people in their representative assemblies.

From a speech at the National Conference on Government, in Buffalo, N. Y., November 20, 1950.

The Big City Is Indispensable

By GEORGE C. SMITH, *President*
St. Louis Chamber of Commerce
St. Louis, Mo.

TODAY we are talking about decentralizing our cities for defense, about moving our government functions out of Washington to scattered locations, and about moving defense industries away from our larger cities to reduce the risks of attacks by unnamed but easily imagined enemies, attacks by bombs—atom, hydrogen or what have they, by germs or chemicals or death rays.

I wonder if now we are planning with our minds and our spirit, if we are considering the humanities, if we understand the economics of city life and of industry, or if we have forgotten the communal spirit of man and the community of interest among industries, and their dependence upon one another. Have we allowed fear or the desire for freedom from fear to become the dominating motive in our social and economic lives?

Human satisfactions, like our economic wants, are unlimited in number and indefinitely various. But it is in the city and not in the isolated atom bomb-proof (?) village or town, where we can get most satisfaction, spiritually and culturally. And that is what Aristotle meant when he said "Men come together in cities in order to live; they remain there in order to live the good life."

Let me summarize this by posing some questions, the answers to which should be obvious.

Varied Services for People

Where do we find the least illiteracy, the best hospital service, the best medical care, the best recreational facilities, the great art galleries, the organized charities, the widest variety of religions and the great preachers, the libraries, especially the technical libraries, the best equipped schools and generally the best colleges, especially the junior and senior colleges giving training in business, and in scientific or technological subjects?

Yes, we can see the beauty of nature in tthe raw to best advantage in the country, but the city offers beauty in its architecture of cathedrals, government buildings, even in some of its newer industries, and in its parks and gardens, in its homes, and churches and schools.

Where do we get the best and widest variety in entertainment?

Enough for the culture of man. How about the economic man?

Where do we get the widest variety of employment opportunities and the largest goals of employment?

Where can we get the widest variety of merchandise for purchase? Why have the mail-order houses opened stores in the larger cities?

How about industries, remembering that no industry is a completely integrated unit?

Where can industry get the widest selection of various skills, the most abundant services for repairs to equipment or replacements? Where does it find adequate electric power so that it doesn't have to build its own power plant? Where does it get an adequacy of transportation facilities, including package cars and car routes for less carload shipment, through fast freight services, abundance of truck routes? Not being completely integrated, where can industry procure the most abundant supply of semi-finished products, of accessory industries, such as coopers, boxmakers, printers?

Where can industry get the best municipal services, including fire and police protection, and adequate, treated water supply?

And where, in the event of disaster, whether it be by bomb, earthquake, fire or riot, is industry most safely located because of abundance of organized agencies which can furnish relief and protection?

From a paper presented at Businessmen's Conference on Urban Problems in Washington, D. C., November 20.

first major fluorescent Street Lighting brilliant success in Detroit

"A beautiful, virtually glareless light, which contributes to easy and quick seeing, and adds to the comfort of motorists and pedestrians alike, thus resulting in increased safety." That's the way Louis J. Schrenk, Superintendent of the Public Lighting Commission, summed up Detroit's fluorescent street-lighting installation.

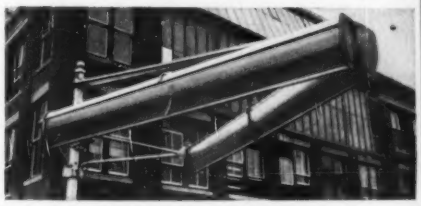
LESS GLARE These giant, 8-foot fixtures have about 5 times the light-giving surface area of conventional luminaires. This results in more light but lower brightness and less glare. This inherent advantage, plus an extremely broad pattern of light on the pavement, reduces glare to the lowest level ever attained in practical street lighting.

PLEASANT APPEARING Fluorescent—most nearly natural of all artificial light—is extremely eye-easing. Because of their pleasing color, low brightness, lack of glare, and uniform illumination, these new fluorescent luminaires "give the impression that there is more light on the pavement than for a standard installation of the same light level."

STANDARD SPACINGS Along Wyoming Avenue, one of Detroit's main traffic arteries, these new G-E Form 200 luminaires are spaced 140 feet between intersections and 100 feet at intersections. Mounting height is 25 feet. The four fluorescent tubes collectively produce 19,000 lumens—putting an average illumination of about 1.0 foot candle on the pavement.

ANOTHER G.E. FIRST The Detroit Lighting Commission and engineers of the General Electric's Illuminating Laboratory working together have advanced a laboratory hope to a brilliant accomplishment. A G-E Street-lighting Specialist is available to work with you. Ask your local G-E Apparatus Sales Engineer today. ***Apparatus Dept., General Electric Company, Schenectady 5, N. Y.***

Notice the extremely broad pattern of brightness between the camera and luminaire.



Distinctive, modern, attractive, that's G.E.'s new Form 200 luminaire. Two lamps are mounted in each half of the unit.

GENERAL ELECTRIC

452-123

What Do People Do In Case of Atomic Attack?

Run to shelter.

Be here in three seconds.

A TWO-REEL motion picture available for purchase by all municipalities, entitled "Pattern for Survival," is the best graphic presentation at present available of what people should do if an atom bomb falls near by.

For all the talk and behind-scenes activity on civil defense, it appears that very little specific information of what to expect and what to do has been given the people. This omission of direct education is understandable, but it must not be pursued as a policy. In the first place, the potentialities in horror are foreign to American thinking. It's all right for the English, the Dutch, the Finns, and the Germans to think about bombing. They know it can happen. But is it wise to frighten American citizens with the facts of bombing, especially atom bombing?

It had better be done. A good way to start is to buy the film "Pattern for Survival" and show it in the schools, churches, societies, industries, and to all other groups in cities and towns.

Three Ways of Destruction

An atom bomb destroys in three ways. The shock wave crumbles buildings and is felt for several seconds. The heat flash, lasting a few seconds, can start fires two miles away. In the air the gamma or X-rays are dissipated in a fraction of a second, but with a ground or underwater blast dangerous radioactivity may persist for months. As the most devastating effects happen in seconds, people within the area of a blast must act in seconds. If there is enough time after the alert, if any, run for shelters, if any. Otherwise crouch flat against concrete pillars, preferably in cellars of concrete buildings. When you see an intense flash of light, cover your eyes with your elbows and dive for cover.

What to do at home, in the office, is also shown in "Pattern for Survival," produced by Cornell Film Co., 1501 Broadway, New York 18.

Practical Aspects of Mutual Aid

THE FURNISHING of fire-protection services beyond a municipality's corporate limits has long been a problem of major concern to cities from an administrative, legal, financial, and policy standpoint. This subject has been treated in our previous bulletins (Nos. 52, 90 and 104) which discuss several forms of arrangements, legal questions, assessment of costs, physical limitations of protection, development of running cards, economies realized, etc.

Most cities in the United States do send fire-department apparatus and men beyond the city limits under one condition or another. Each municipality should be ready to cooperate in mutual-aid agreements, especially at the present time when civil-defense programs are being activated.

Adequate modern radio communication between fire departments and their apparatus, and portable field sets, are essential under a mutual-aid plan in coordinating fire-department operations at a major catastrophe, particularly when other means of communication have been destroyed. Standardized hose couplings or the provision of sufficient hose adapters are essential for mutual aid.

Another effective step is the interconnection of the water-supply systems to provide for an emergency reserve. Water-works maintenance men as well as fire-department officers should be kept fully informed regarding the water-distribution systems on both sides of municipal boundaries.

In larger cities and in metropolitan areas, certain streets or routes should be established as fire lanes in order to minimize delays in response to fire apparatus. These fire lanes should be made continuous through adjoining municipalities as part of an effective mutual-aid plan.

The rapid development of atomic weapons and guided missiles has increased the importance and scope of civilian defense. Arrangements must be made not only quickly to concentrate and employ apparatus and manpower at a major fire, but also to have other organized and trained emergency groups, such as water-distribution-system repair and water-tank-truck crews, power linemen, and police emergency and rescue squads, strategically located in reserve and quickly available.

In the light of the foregoing, it is suggested that municipalities reappraise their fire-defense capabilities with the objective of insuring most effective use of their facilities not only for an emergency within their borders, but also one confronting a neighboring community.

JOHN A. NEALE
Chief Engineer
National Board of
Fire Underwriters
New York, N. Y.

Brackets, luminaires and component parts by Josyln Mfg. and Supply Co.

Let steel poles be the *finishing touch* to your civic improvement program!

• You add a lot to the looks of your city when you replace obsolete wood poles with trim-looking tubular steel standards. On the main streets, on the boulevards or in the parks, steel poles are smartly unobtrusive, and they stay good-looking and modern . . . an important feature in long range civic planning.

Use them right, and steel poles will save you money. They can be spaced at wider intervals, so you need fewer poles. They're easy to erect, require no maintenance except for an occasional paint job.

Steel poles are safe. They take a lot of punishment. And, because of steel's great strength, tubular poles can be made with smaller diameters —resulting in better traffic visibility and better all around safety.

NATIONAL Seamless Tubular Steel Poles have uniform wall strength without longitudinal welds. To produce them this way, we actually pierce a billet of fine steel to form the basic tube. This forging operation, one of the most difficult in steel forming, gives you the famous "Walls Without Welds," and, incidentally, the strongest, most durable tubular steel section you can buy.

For a description of these steel poles, write for Bulletin No. 14. National Tube Company, Frick Building, Pittsburgh 19, Pa.

USS

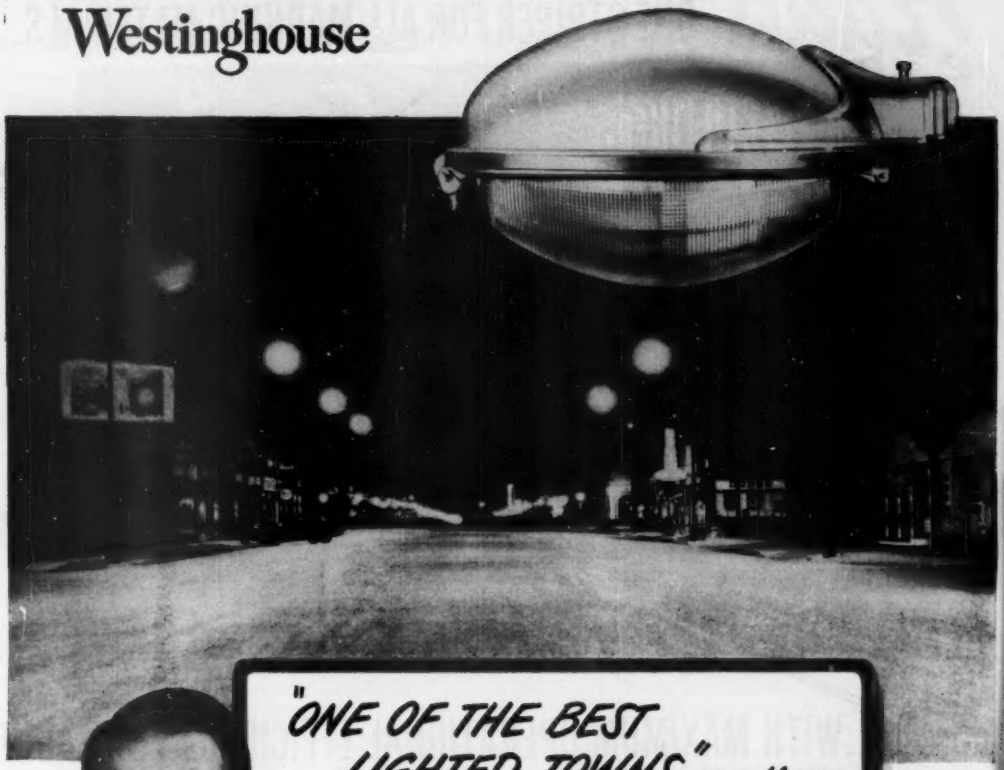
NATIONAL TUBE COMPANY, PITTSBURGH, PA.

COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

NATIONAL *Tubular* STEEL POLES

UNITED STATES STEEL

YOU CAN BE SURE.. IF IT'S
Westinghouse



"ONE OF THE BEST LIGHTED TOWNS" says Mayor

"We have considered our town one of the best lighted in the Rocky Mountain area," says Mayor Price Hopkins of Greeley, Colorado. *"It is my understanding that the first major installation of the OV-20 mercury-vapor type of lighting was made in Greeley."*

In a recent letter to the Home Gas and Electric Company he further states, *"It has been in use now about two years and has been completely satisfactory."*

Further proof of their satisfaction comes in his final statement, *"It is with these thoughts in mind we have authorized your company to make the additions which were recently requested."*

This could be your town. Want proof?

Don't take our word for it. Ask Mayor Hopkins. Better yet, go see the town of Greeley.

Seeing for yourself is real proof. J-04276-A

There's Danger in Darkness . . . but Safety in Light

Westinghouse
PLANNED
LIGHTING
SYSTEMS

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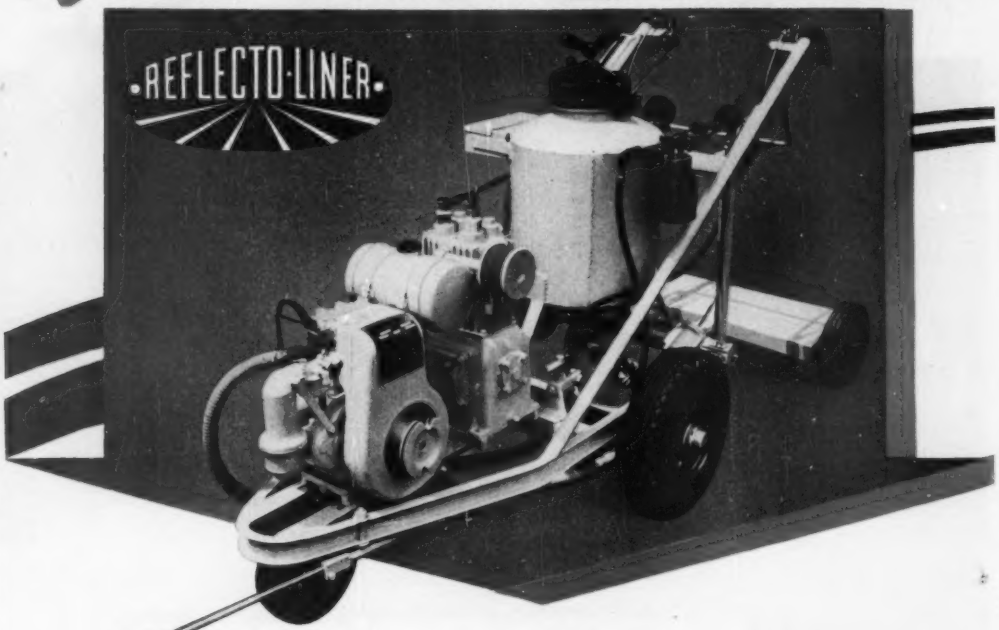


...WITH MAXIMUM OPERATIONAL EFFICIENCY FOR EACH!

The *new* Wald "REFLECTO-LINER", Model 12, is the first *major improvement* in striping machines since their introduction. It is the *only* striping machine designed specifically for *reflective* marking materials, handling with maximum efficiency: premix, reflective binders, and ordinary traffic paint as well. *All* materials are handled with equal efficiency and facility.

The "REFLECTO-LINER", Model 12, STRIPER introduces the high capacity "Nu-Matic" spray gun which contributes greatly to the overall efficiency of the machine, laying a clean sharply defined line with an even cross distribution of material.

A constant 100% air reserve supply is maintained at all times during operations, without burdening the compressor or motor. Continued efficient operation is assured as a result of this reserve capacity—"The heart of a striper".

Specific features of the *new*, Wald "REFLECTO-LINER": channel and tubular steel anti-vibration frame; pneumatic and zero pressure wheels, puncture proof front tire; Hi-speed, 6 H.P. air-cooled gas engine, that purrs not races with heaviest striping materials, operates 2 to 5 MPH; ribbed drivers insure positive drive; compressor (large) 12.5 cu. ft., handles thinnest traffic paint to thickest compound; tank—12 gal. supply—wide mouth (5.75 in.); strainers in paint line for easy removal of foreign matter; spray gun—hi-capacity producing uniform cross distribution. "Nu-Matic" design minimizes replacement parts; engineered for easy maneuverability, especially when reflective coatings are used.

The "REFLECTO-LINER", Model 12, has been tested by the Prismo Laboratories, Huntingdon, Pa. and found to be in accordance with these claims.

For complete information send for Bulletin # 507.

Wald Industries Inc.

MONTGOMERY, PA.

Traffic Control and Facilitation

Cities Obtaining Broad Powers To Develop Off-Street Parking

By BETHUNE JONES
Analyst
Red Bank, N. J.

AUTHORITY of cities to build and operate off-street automobile-parking facilities to relieve mid-city traffic congestion has been significantly broadened in a number of states this year, and will spread further in 1951 when legislatures of 44 states convene.

The recently appointed NEW YORK CITY Parking Authority will seek enactment, in 1951, of state legislation eliminating a present 10-year limitation on the pledging of parking-meter revenues in support of revenue bonds it may issue. George V. McLaughlin is chairman of the new agency.

Wide Powers for New York

Creation of the three-member New York City authority was enabled under legislation enacted by the 1950 New York State Legislature. Subject to zoning laws, the city agency has the power to buy, construct, or operate parking facilities and to install and collect fees from use of parking meters. It can rent or sell concessions for the sale of gasoline, oil, accessories, and for servicing automobiles. It is empowered to issue its own bonds up to a limit of $100,000,000 to raise money for its operations, and to pledge all its revenues, including those received from parking meters, for interest and redemption of its obligations. Projects of the authority will be tax-exempt.

RHODE ISLAND'S Legislature this year enacted a new off-street-parking statute, sought by the City of Providence to replace a previous law which had run afoul of constitutional difficulties. It dropped a provision of the old law which had provided that the city must lease any facilities it built to private operators, and includes a clause prohibiting the sale of petroleum products in any garage or parking lot the city might build.

CALIFORNIA'S electorate at a June referendum approved a state constitutional amendment to remove any legal doubt of the right of cities to pledge parking-meter revenues for retirement of bonds for off-street parking facilities.

IDAHO voters approved, at the November 1950 general election, a state constitutional amendment which would permit municipalities to issue revenue bonds for off-street parking facilities and several other improvements.

The ILLINOIS Supreme Court recently upheld the constitutionality of a 1949 state law empowering cities to build and operate off-street parking facilities. The Illinois statute allows cities to finance development and operation of parking lots by revenue bonds, paid off from the income the lots produce. It permits a city to run its own parking facility, or lease it to private operators. Cities are empowered by the law to condemn property for parking purposes. Illinois cities planning to use the law in attacking their traffic-congestion problems include Chicago, Danville, Kankakee, Springfield, Evanstown, East Moline, and Taylorville.

The MISSOURI Supreme Court upheld the power of Kansas City to use public funds for development of off-street parking facilities, which it may operate itself or lease to private operators. "The acquisition of land and the establishment and operation of public off-street parking stations or garages by defendant city being for public use and for public purposes," the court held, the fact that such stations "will compete with private enterprises, is not material or decisive."

FLORIDA'S Supreme Court recently upheld the authority of the City of Miami Beach to issue $1,500,000 worth of bonds to improve its parking facilities. Miami Beach proposed to acquire additional parking facilities and to improve present facilities. Bonds to finance the plan would be paid off with revenue from the parking facilities, including that from on-street meters. Contentions of opponents that Miami Beach had no authority to issue the certificates and that operation of the facilities would illegally place the city in competition with private enterprises were overruled by the Florida court, which held that charges for such facilities are lawful "so long as they are reasonably necessary to defray the expense of regulating parking in the interest of the welfare of the citizens as an entire group, and do not have the raising of general revenue as their primary purpose."

Along with the trend toward new and broader municipal powers to attack the parking problem, an increasing number of cities is acting under existing legal authority to provide additional off-street parking space. Latest figures on the subject published by the International City Managers' Association show that almost 40% of the cities with populations over 10,000 now own and operate one or more off-street parking lots.

Chamber Wins Fight for Parking Meters

Chrystie-Forsyth Area, a Portion of East Broadway of Nearby Division Street to Receive First Allotment

By JEREMIAH LEVY
President, East Side Chamber of Commerce and President, Simon Levy & Sons Fur Corp.

For almost two years now, the East Side Chamber of Commerce has been urging on the municipal authorities the need of establishing parking meters for the vast shopping areas in the general vicinity of the Manhattan and Williamsburg Bridges. The Chamber, in its study of the parking problem, has been convinced that until a large-scale solution of off-street parking facilities is provided shoppers from outlying areas can only be encouraged to continue to come to Lower East Side if they can park their cars for an hour or two.

When the City government created the Traffic Commission more than a year ago, the Chamber lost no time in trying to impress on this commission the need and the desirability of parking meters. But the Chamber never gave ground. It even prevailed on its Councilman, Robert Weisberger, to introduce a bill in the City Council for local parking meters. When the Mayor appointed Lloyd Reid, from Detroit, Commissioner of a re-organized Traffic Department of New York City, we lost no time in conferring with him and telling him in detail about our problem and urging the allotment of parking meters to specific streets as soon as possible.

As most members have since read in the daily press, the Chamber's fight for parking meters has been won. Parking meters will be installed in the next 2 or 3 months along the Chrystie-Forsyth Parkway, along a small portion of the area in the immediate vicinity of the Manhattan Bridge—on East Broadway and Division Street.

In a letter to Commissioner Reid, we congratulated him on his decision and promised the help of the Chamber's executive office staff to make the first installation a success. The Commissioner, in reply, expressed his appreciation for the offer of co-operation and promised to keep in touch with us. We propose to invite him to address one of our fall luncheon-meetings.

FROM THE AUGUST 1950 EAST SIDE CHAMBER NEWS, 231 GRAND ST., NEW YORK 13, N. Y.

MORE TRANSIT LINES ORDER TRACKLESS TROLLEY COACHES

NEARLY 800 electric trackless trolley coaches have been ordered by transit systems in the United States and Canada during the past few weeks. This number, plus a considerable backlog which will not be delivered until next year, will swell the total of 1951 deliveries to over 1,500 trolley coaches. This more than doubles the 698 trolley coaches delivered in 1949.

These vehicles and the electrical equipment necessary for trolley coach systems represent an investment of more than $50,000,000. It is due in part to the desire of public transit companies in the two countries to be ready for any possible emergency, should liquid fuel face rationing.

EXPECT PRIORITIES

Defense authorities have indicated that the public transit industry will shortly be designated as essential, and the Department of Labor has already placed the industry in an exempt position for certain manpower classifications. It is also believed that production authorities will give a particular nod to increased production of streetcars and trolley coaches because of their use of electrical power, which has never been rationed.

In 1940 the public transit industry was carrying an average of 13 billion passengers yearly. Currently about 18 billion passengers are being carried. Industry leaders estimate that tire and gasoline rationing would send the figure as high as 26 billion annually.

There were slightly over 2,000 trolley coaches in transit service prior to World War II. This figure has risen steadily as trolley coaches have been placed in service to replace abandoned streetcar lines and as replacements for overburdened city bus lines. Nearly 8,500 are now in service and with 1951's deliveries completed, the figure will reach 10,000.

Because trolley coaches start immediately at sub-zero temperatures with no preheating of their electric motors, it is not necessary to build garages except for their minimum maintenance; the vehicles can be stored in open lots. This is a considerable saving, as transit systems have found that the cost of garages equals the cost of their motor vehicles. Maintenance charges are very low, and less skilled manpower is needed to keep them in running order.

Although trolley coaches show most favorable earnings under adverse war operating conditions, they have been able to show impressive financial gains for transit companies which have been caught between rising costs of labor and materials and fewer customers.

PROFITABLE IN BROOKLYN

The 200 trolley coaches are the only surface vehicles in Brooklyn making a profit for the Board of Transportation. San Francisco, in reporting its first transit operating profit in ten years, gave credit to the earnings of trolley coaches which were able to offset losses from other types of vehicles.

Many privately owned transit systems declare that the lower cost of operating trolley coaches has helped save them from bankruptcy.

Reprinted from THE JOURNAL OF COMMERCE, Oct. 31, 1950

151-27

GENERAL ELECTRIC

4,500 Cars Use 216-Car Lot in a Day

By WILLIAM A. KENNEDY
Public Relations Director
Rockville Centre, N. Y.

IN THIS municipality of nearly 25,000 there are over 5,000 daily commuters by train to New York City. They needed parking areas desperately. Moreover, the village is the food-sales center of Long Island, with some $5,000,000 in annual turnover for food. The shoppers needed parking space.

Five years ago, the village government set up a program for the future—a planned program of improvements of all kinds. The first step was to produce parking fields in as many parts of the business section as possible. From four fields with a capacity of 400 cars, the municipal parking areas grew to 14 fields with a capacity of 1,600 cars. The problem had been met and solved—temporarily.

Permanent Parking Areas

Then village officials undertook step two—making some of these parking areas permanent. Some had been leased, some "borrowed" at $1 a year, some purchased. Naturally, many of them could not be paved, drains could not be built, permanent lighting could not be installed, because the property belonged to private owners.

The first permanent field was built in the interior of the most active business block. Since its opening, it has attracted wide attention from officials of many other villages and cities in the vicinity of New York, some of whom have made personal inspections of its layout and operation. The land was acquired by condemnation proceedings at a cost of about $174,000, assessed against business property in the village, with the abutting property paying 55%, that within a block 30%, and the remainder 15%. The improvement cost of $85,000 was assessed against all village real estate.

Rubber Joints

One innovation introduced was the use of rubber in the joints, rather than ordinary filler, supplied by the U. S. Rubber Company. Chester E. Voorhis, head of the engineering firm, recommended the rubber because he had found, while building air strips in the South Pacific during World War II, that rubber made a better joint-filler than ordinary materials because it allowed for greater expansion and contraction.

Underground drains carry off the rain water, and water mains and hydrants provide fire protection. General Electric mercury-vapor lights, burning only 50% of the electricity consumed by ordinary street lamps, make night parking attractive, and the field is much used by patrons of the near-by theaters and restaurants. The lamp posts are located on the central mall, which runs the length of the field with one break for a cross roadway.

The field which is reserved for shoppers was planned to permit a fast turnover of parking space rather than to accommodate the maximum number of cars at one time. The 216 parking spaces, 8½ feet wide, are clearly marked off at a 55-degree angle, making it easy to drive in and to back out. The maneuvering areas or driveways are 20 feet wide, leaving ample room for two lanes of traffic, which is so directed that a minimum of cross traffic and no U-turns in the roadways occur. Cars enter and leave the field by any of the three exit-entrances, each one to a different street. The field has a three-hour parking limit. By count on one busy shopping day, nearly 4,500 cars used the field between 8 a.m. and 6 p.m.—an average half-hourly turnover of approximately 225 cars, nine more than the capacity of the field.

Village officials, to assist shoppers and to help local merchants, encouraged shop owners to build attractive rear entrances to their stores, so that persons might walk from their cars directly into the stores, abutting on the parking field. The result has been that many rear show windows have been installed, further increasing the charm of the parking area.

Our first "permanent" parking field has been successful. A second, with a capacity of 369 cars, was opened in December 1950. A third and a fourth are scheduled to be constructed in the next few months.

Rockville Centre's first of four permanent lots featuring maneuverability; the concrete slabs have rubber expansion joints.

For Bicycle Safety

THERE is little doubt that today's careful cyclist is tomorrow's safe driver; and, conversely, today's ill-informed, irresponsible bicycle operator is tomorrow's casualty. In over two-thirds of accidents involving automobiles and bicycles, the cyclist was at fault. Moreover, almost three out of four cyclists are children and, on the basis of past records, it seems tragically certain that unless measures are taken for their protection, many cycling youngsters will be killed or injured—some of them crippled for life—before this year is over.

Many automobile drivers automatically label the boy or girl behind the handlebars a nuisance, with no rights on the street. On the other hand, many cyclists consider themselves "privileged characters," entitled to ride on the wrong side of the street, to zigzag in and out of traffic, to violate traffic lights, and to ride on the highways at night without adequate lights.

To combat these dangerous attitudes, alert city officials have adopted programs that call for the registration and licensing of bicycles, for police powers to impound bicycles and suspend and revoke licenses, and also for special bicycle courts, to be conducted under the direction of the police department's public-safety section.

JULIEN H. HARVEY, *Manager*
Association of Casualty and Surety Companies
New York 7, N. Y.

• 1951

Joe Prismo — *seer of the year!*

Yes sir, JOE PRISMO is always looking forward to new road safety methods and improvements. Technical advances are constantly being brought about through expert research and development by PRISMO LABORATORIES. All PRISMO PRODUCTS receive the same grueling road tests for color, capillarity and sphere retention properties, by subjecting them to accelerated weathering and abrasion. That is the reason PRISMO PRODUCTS stand all traffic tests with superior ratings. JOE PRISMO sees the year 1951 a boon-to-the-budget for Traffic Engineers who specify longer lasting PRISMO REFLECTORIZATION PRODUCTS.

Write today for fully informative bulletin on the many uses of PRISMO, the Sphere of Safety.

The SPHERE of SAFETY

PRISMO - SAFETY CORPORATION
HUNTINGDON, PENNA.

Uniform Traffic Regulations Urged

WITH the dual objectives of promoting safety and the constructive regulation of motor trucks, the Council of State Governments recommends: (1) adoption of uniform state laws regulating motor-vehicle traffic; (2) setting up of sound administrative organization and procedure to enforce the laws; (3) adoption of uniform size and weight limitation on trucks; and (4) equitable provision for the distribution of highway costs among the several classes of highway users.

Fatalities from motor-vehicle accidents have approximated 32,000 annually for a number of years. One answer to the problem of how to reduce this death toll lies in the adoption of more uniform motor-vehicle laws and enforcement policies from state to state and within states. "A diversity of traffic regulations encountered within one or two hundreds miles and the changes in traffic laws found as one travels across state lines are confusing and hazardous," the Council's study points out. "Where necessary, legislation should require counties and municipalities to conform to state and national vehicle codes."

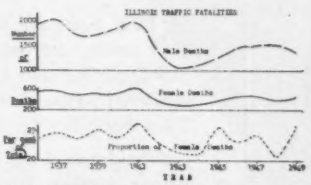
The Uniform Vehicle Code, originally drafted in 1925-26 by the National Conference on Street and Highway Safety, was described by the study as "the most practical aid yet devised for greater highway safety." Most states have adopted some of its sections, the study pointed out, and 13 have adopted it almost in its entirety.

Female Traffic Deaths Higher in Odd Years In Illinois

LAST year the number of traffic fatalities in Illinois was 8% lower than in the preceding year, but the number of female deaths increased from 395 in 1948 to 421 in 1949. This unusual occurrence prompted inspection of fatality records maintained since 1936 to elicit information on the proportion of female fatalities.

For females, the year of maximum traffic deaths was 1941, with a total of 615. The low year was 1943, with 277 deaths. For males, the high year was 1937, with 2,012 deaths and the low year 1943, with 1,051. For the entire period, 22% of the persons killed were females.

Throughout the entire period, with the exception of 1943, when traffic was altered by war conditions, the percentage of female deaths rose in odd-numbered years and declined in even years. The 1949 increase in female deaths was an increase in an odd-numbered year, and the proportion of female deaths was well over 23%. If this relationship remains operative when the 1950 figures are available, female deaths can be expected to drop back to 22% and will total about 440.

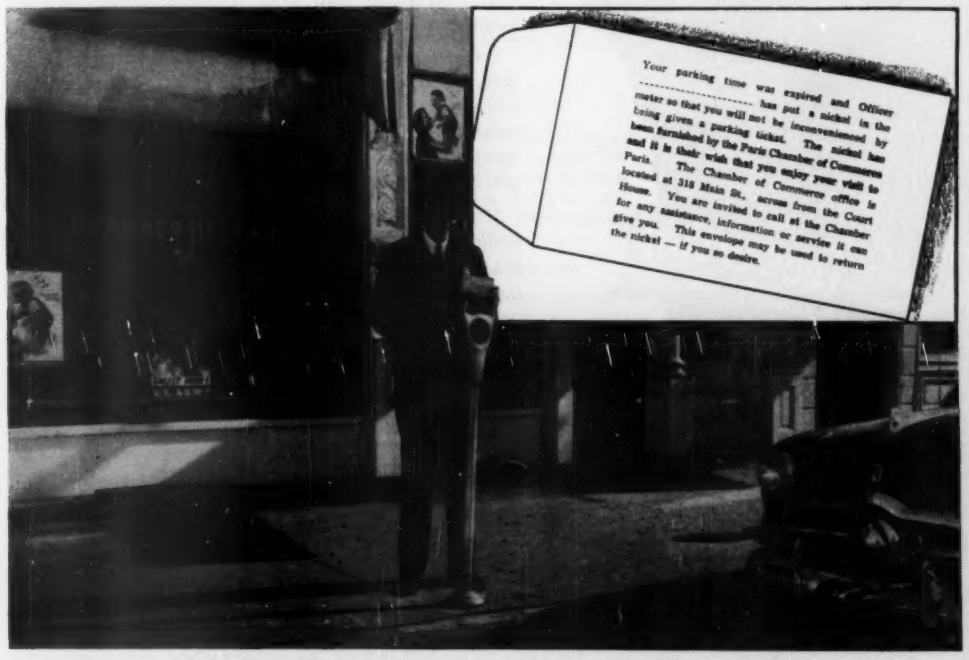


Note how female traffic deaths rose every other year.

Courtesy Nickels For Parking Violations

COURTESY nickels for out-of-town parking violations have met with marked success, 45% of the nickels being returned in the envelope shown. A stamp can be placed on the reverse side. When the envelopes are returned to the office personally, the violator is appreciative of having received a courtesy nickel instead of a ticket.

MILES M. DAVIS, *President*
Chamber of Commerce
Paris, Ky.


Your parking time was expired and Officer
has put a nickel in the
meter so that you will not be inconvenienced by
being given a parking ticket. The nickel has
been furnished by the Paris Chamber of Commerce
and it is their wish that you enjoy your visit to
Paris. The Chamber of Commerce office is
located at 318 Main St., across from the Court
House. You are invited to call at the Chamber
for any assistance, information or service it can
give you. This envelope may be used to return
the nickel — if you so desire.

A Paris (Ky.) policeman performs an act of courtesy for a delinquent parker.

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NEW exclusive features and major improvements, *nineteen in fact,* assure users of the new Dual *Gearshift* Automatic a new high in meter flexibility, dependability and low maintenance. Take flexibility for example . . .

Should you want to change a 1-hour zone to 2-hour parking, the Dual movement is converted instantly, on the spot, by the mere shift of an easily accessible gear lever. Nothing could be simpler or faster!

Other conversions in timing or coin combination, as required, are now made almost as easily and quickly. The upshot of it is, you have equipment that is completely adaptable to changing conditions, even seasonal changes! You save plenty of time, inconvenience and money, come what may.

If you're planning metered parking or need additional metering equipment, be sure to find out about *all* the things Dual has done to give you completely practical, trouble-free, low-cost meter performance. Send for complete details.

THE DUAL PARKING METER COMPANY
A Subsidiary of The Union Metal Manufacturing Company
Canton, Ohio

..YOUR BEST ANSWER TO EVERY PARKING PROBLEM

Outdoor Lighting

Detroit Paces Big City Use Of Fluorescent Street Lights

THE nation's first major fluorescent street-lighting system was placed in operation by the Detroit Public Lighting Commission on November 3, 1950.

Illuminating a half-mile stretch of Wyoming Avenue, one of the city's main north-south traffic arteries, the new white-way system uses giant, 8-foot-long tubular fixtures designed and built by the General Electric Company. The fixtures consist of two, scientifically designed, aluminum reflector units joined together at a lateral angle of 30 degrees. Each reflector contains two eight-foot-long fluorescent lamps, wherefrom light is directed through clear plastic windows to the street.

Details of System

A total of 24 fixtures, extending out from over the curb on either side of Wyoming Avenue, comprises the installation. They are mounted 25 feet above the pavement on wood poles located on opposite sides of the street. Spacing of the poles is 140 feet between intersections and 100 feet at intersections.

Louis J. Schrenk. Superintendent of the Public Lighting Commission, called the new system—

The most outstanding street-lighting installation in the United States. Detroit is one of the country's best-lighted cities. To maintain that position, we must constantly experiment with new light sources and take the lead in new developments. These new fixtures provide a bright, virtually glareless light, thereby contributing to easy and quick seeing and adding to the comfort of motorists and pedestrians alike, with resulting increased safety.

Lack of glare is due mainly to the size of the light source. The 8-foot-long fluorescent lamps used in the fixtures are approximately five times as large as an equivalent filament, or incandescent lamp. In addition, the shielding of the fixture is such that the light is concentrated where it is needed, rather than scattered where it would interfere with seeing.

Four fluorescent lamps on each fixture collectively produce 19,000 lumens of light. The average calculated illumination level along the six-block stretch of Wyoming Avenue is about 1.0 footcandles. Moreover, the color of fluorescent light is very pleasant, and the uniformity of illumination gives the impression that there is more light on the pavement than for a standard installation of the same light level.

Seeing Is Living

THE year 1949 saw 18,030 persons killed in night-traffic accidents and 13,770 in daylight. The killing rate per vehicle was four times as high at night as in the daytime. On the basis of traffic volume, there should have been one-third as many deaths at night as there were in daylight. This would be 4,600. But the actual number of night deaths (18,030) is four times this figure!

There are six causes of night-traffic fatalities that are strictly night factors: (1) defective tail-lights, (2) defective head-lights, (3) fatigue, (4) fog, (5) alcohol, and (6) inadequate visibility. Darkness being the characteristic of night, it is that sixth factor which makes night-traffic conditions particularly different from day conditions, and it is this factor which appears to be directly responsible for 9,918 of 1949's 18,030 night deaths.

According to the street-lighting standards of the Street and Highway Lighting Committee of the IES (Illuminating Engineering Society) and the ASA (American Standards Association) approximately 75% of all street lighting in use today on heavily traveled thoroughfares, business streets, residential areas and hazardous sections of highways, have only ¼ the amount of light needed for adequate visibility.

Look at the Record

When modern, adequate lights go up, night-traffic deaths go down. Twenty actual cases where this has happened are noted below:

BEVERLY HILLS, CALIF.—The city installed modern lighting on a mile-long, heavily traveled street where there had been many traffic accidents, including deaths and injuries of pedestrians. During the two years since this improved lighting, there were no traffic fatalities.

BRIDGEPORT, CONN.—Night pedestrian deaths were reduced 93% on streets where visibility was improved by increased illumination.

CLEVELAND, OHIO—The year before the city started an extensive relighting program, there were 59 pedestrian deaths. At the end of the first year after the relighting started there were 42 pedestrian deaths.

DARBY, PA.—Night fatalities at six intersections on the main highway the year before relighting were reduced to none the year after improving visibility.

DETROIT, MICH.—There were nine accidents on a four-mile stretch of main thoroughfare before improving visibility by relighting, compared with none the year after.

GRAND RAPIDS, MICH.—Traffic fatalities were reduced from 14 to 3 on a four-mile stretch of road leading into the city where visibility was improved.

HARTFORD, CONN.—Night fatalities dropped from 11.5 per year to 4 per year on 31 miles of streets after improving visibility with increased illumination.

HAYWARD, CALIF.—After increasing illumination on a main highway leading into the city, a three-year average death rate dropped from six to zero.

HOUSTON, TEXAS—Annual fatalities on 4.3 miles of a main traffic thoroughfare dropped from five to one after relighting.

KANSAS CITY, MO.—Night traffic fatalities were reduced 86% on streets where visibility was improved.

LOS ANGELES, CALIF.—Night fatalities at 20 intersections for two years prior to improving visibility totaled 11, compared with one for two years after relighting.

MAMARONECK, N. Y.—No pedestrian has been killed since street lighting was improved.

NEW JERSEY—Night fatalities on 113 miles of highways dropped 76% after relighting.

PLYMOUTH, MASS.—The lighting on main street was improved by installing 10,000-lumen lights to increase the visibility in the interest of public safety. Since the installation there have been no fatalities.

SALT LAKE CITY, UTAH—Deaths dropped from 12 to 1 the year after improving visibility on a three-mile stretch of highway entering the city.

SEATTLE, WASH.—During a 10-month period following the relighting of a mile-long, heavily traveled street, the following reductions were noted: 31.5% in total traffic accidents (from 41 to 28); 55% in personal injuries (from 9 to 4); and 100% in fatalities (from two to none).

SPOKANE, WASH.—Before improving visibility on 2.8 miles of a main thoroughfare, there were five deaths in four years. In five and a half years after

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- **Builds respect for the system**
- **Improves your Public Relations**
- **Protects the Public's interests**
- **Creates consumer acceptance**
- **Reduces enforcement costs**

CITY OFFICIALS APPRECIATE THESE TWO EXCLUSIVE PARK-O-METER FEATURES

VISUAL TROUBLE SIGNAL. When a Park-O-Meter has been jammed or becomes inoperative, the red line shows through coin windows to warn the motorist and to signal the meter Service Attendant.

COIN GATE BLOCK. When a Park-O-Meter is not in working condition, the coin gate is automatically locked and motorist cannot insert a coin. Experience has proved that this feature eliminates 90% of excused tickets.

When you buy PARK-O-METER you buy everything

Magee-Hale PARK-O-METER COMPANY

relighting, there were no fatalities.

STAMFORD, CONN.—During 1947 and 1948, improvements were made in driving visibility by increasing the power of nearly every light, and by new installations in certain areas. For the first nine months of 1949, there were no fatalities compared with six in 1945 and three in 1946, the two years before the improvement.

UTICA, N. Y.—During a two-year period before lighting was improved on a 1.6-mile-long main highway entering and leaving the city, there were 44 traffic accidents, 3 pedestrian fatalities, 7 pedestrians injured, and 32 persons in cars injured. During a two-year period after the improvement, the figures were 26, 0, 2, and 17, respectively. Night accidents were reduced 41%, fatalities 100%, pedestrians injured 71%, and persons in cars 47%.

WATERBURY, CONN.—Pedestrian fatalities on main streets dropped from seven the year before relighting to none the year after.

These and other facts are presented in a new 12-page booklet available without charge from Edmond C. Powers, The Street and Traffic Safety Lighting Bureau, 1410 Terminal Tower, Cleveland, Ohio. Ask for "New Evidence on America's Fatal Streets."

How Cobleskill, N. Y., Got Night Softball

By C. A. SWANSON
Sales Engineer
General Electric Company
Albany, N. Y.

"THERE'S no reason why towns of less than 5,000 people can't have a night softball field," says Warren Buxton, president of the Mercury Athletic Club, Cobleskill, N. Y. The pictures shown here and Cobleskill's population of 3,000 help to prove his point. One of the first requirements of any such installation is to get going early if you want to use it in the coming summer.

Local limitations at Cobleskill were money and a site with a building on it that made it difficult to erect floodlighting poles in the outfield. Mr. Buxton got hold of layout plans for a park that had a similar problem and assigned the job to local contractors, who agreed to put up the poles at $100 each. Then a conference was held between Niagara Mohawk Power Company representatives and people willing to underwrite the project. It was agreed to meet the code at the lowest cost.

Floodlighting Poles

Six floodlighting poles were set up around the softball diamond: two at home plate with 40-foot mountings, one each at first and third base with 50-foot mountings, and one each in right and left fields with 60-foot mountings.

Forty-eight 1,500-watt General Electric floodlights were wired in by two local electricians. These provide 50 footcandles at home plate and an overall average of 25 footcandles. The spill from the home-plate floodlights illuminates the parking lot.

With members of the Mercury Athletic Club doing a lot of the work for nothing and by having the rest of the work done by local contractors, the ball park was floodlighted for less than $4,000. To cover this, 3% bonds were sold at $10 each and redeemable in 5 years—$3,600 worth in one night during a bond rally on Cobleskill's main street, with $2,000 more pledged.

The first softball game under the new lights was played on June 23, 1950.

Warren Buxton (center) with electrical contractors Francis Pratt and William Vielle note light intensity at home plate.

Softball field at Cobleskill, N. Y., lighted by 48 GE 1,500-watt floodlights.

JOSLYN
SENIOR LUMINAIRE

PROVIDES IMPORTANT NEW ADVANTAGES FOR YOUR STREET LIGHTING SYSTEM BECAUSE IT HAS BEEN ENGINEERED FOR

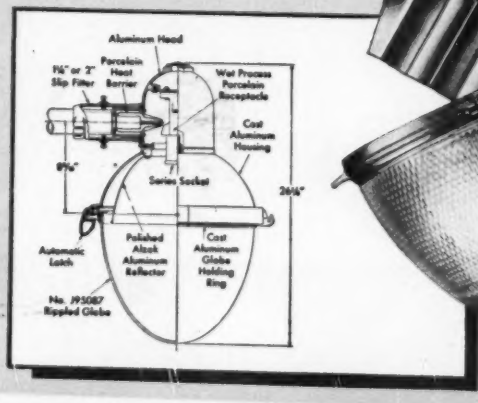
LUMINOUS EFFICIENCY

MECHANICAL and ELECTRICAL DURABILITY

CONVENIENCE OF OPERATION

1. For high intensity illumination—ideally suited for 10,000 or 15,000 lumen series or multiple incandescent Lamps. Also, for Type E-H1, 21,000 lumen or Type F-H1, 36,000 lumen Mercury Vapor Lamps.
2. Sturdy cast aluminum head and reflector housing.
3. Highly polished heavy gauge Alzak* Aluminum enclosed Reflector.
4. I.E.S. Types IV or V Light Distribution; especially suited for wide city streets.
5. All features liberally designed to minimize heat concentration.
6. New design of Slip Fitter—with strong 2-bolt clamp and aligning set screws—stainless steel bolts and screws—streamlined contour—blends gracefully into pipe bracket—available for either 1¼" or 2" pipe.
7. Includes the well-known Joslyn hinged automatic latching glassware which facilitates re-lamping from the ground.
8. Available with slip fitter or top-mounted head, for inner wiring and with Wet Process Series, Dry Process Series Receptacle or Mogul Multiple Socket.

*Mfg. under Aluminum Co. of America patents.



Branch offices in principal cities

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JOSLYN MFG. AND SUPPLY CO.

Complete Pole Line Equipment

20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

Clusters' last stand in Pittsburg, Kans.

New Lighting System Of Pittsburg, Kans., Speaks for Itself

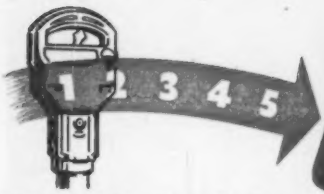
By WILLIAM E. HANSEN
City Manager
Pittsburg, Kans.

THE lighting improvement which I described in the May 1950 issue of THE AMERICAN CITY has been completed, with the results portrayed on this page. Gone are the clusters of the business district (shown above), and the new white way (at bottom) is more in keeping with the automotive era. The pendant lighting on the residential streets speaks for itself in terms of good seeing and crime discouragement.

The relighting program called for the removal of 244 luminaires, including 174 clusters, and the installation of 380 new General Electric lamps, including 86 on new Union Metal standards. Of the new lamps, 175 were the 10,000-lumen type. Increased annual cost will amount to less than the sum of $3,000 a year.

Above and below: new lighting on two residential streets in Pittsburg, Kans.

Compare new white way with picture at the top.



OVER 34,000

MI-CO Parking Meters Have Been In Operation

5 YEARS OR LONGER

This statement is unusually significant if you are considering the purchase of parking meters for initial installations, or replacing worn out or nonproductive meters with new ones.

Every meter investment is a major one, and the five- to ten-year record of MI-CO meters is your assurance that you invest wisely when you buy MI-CO's.

Perhaps the most important advantage of a parking meter—one that cannot be demonstrated in the council chamber—is dependable service day after day for many years. Proof of such trustworthiness can come only from long periods of successful operation under all conditions. And here is that proof:

"OVER THIRTY-FOUR THOUSAND
MI-CO Parking Meters Have Been in Operation
Five Years or Longer"

You'll be interested in maintenance figures and earnings of MI-CO installations—some of them more than ten years old. They tell a story you cannot afford to overlook.

Before you invest in parking meters, insist on at least five-year performance records. We'll be glad to send you these figures as well as additional information on why you can depend upon MI-CO meters for extraordinary service.

MI-CO METERS, 231 Court St., Covington, Ky.
Division of The Michaels Art Bronze Co., Inc.

The Municipal Bond Market

Happy New Year!

By CATHERINE CLARK
Municipal Service Department
Dun and Bradstreet, Inc.
New York, N. Y.

A Happy New Year, Pasadena, Cal.
Likewise, Long Beach, L. A., Fresno, et al.
And greetings to the State of Alabam,
Decatur, Florence, Gadsden, Birmingham.

●

Oh, strum the lute for good old Butte
And make the welkin ring
For Roanoke and Nanticoke,
For Bath, and Ossining.

●

In Picayune and Saskatoon
Be hearts and faces merry.
In Asbury Park and Hot Springs, Ark.
May spending tourists tarry.

●

May tax collections bulge for windy Chi,
In Little Rock may revenues be high,
May income-tax receipts go up in Philly
And out-of-staters pay up, willy-nilly.

●

Oh, ring the bells for Mineral Wells
And for Aransas Pass.
For Ashtabula and Pascagoula,
Lift high the brimming glass!

●

In Newport News and Baton Rouge
Come spend a happy hour.
In San Antone, likewise Bayonne,
Let laughter bloom and flower.

●

May factory payrolls mount up in Beloit.
In Boston, Cleveland, also in Detroit
Let transit income, net, go up again
And passengers be multiplied by ten.

●

For Buffalo and Kokomo
Our merry voices sound;
For Broken Bow, and St. Joe, Mo.
The cheering cup goes 'round.

●

To Saginaw and Wichita
We send our joyous greetings.
In Omaha and Haverstraw
May there be happy meetings.

●

May handsome profits all this year be had
From gas and water works in Trinidad.
May news of the completion of New York's
Administrative survey reach Grand Forks.

●

Our voices noisy we lift for Boise,
A song for Kankakee!
Let's sing a reprise, oh, for Valparaiso,
Another for Albert Lea.

●

A toast to Gary and Tuscumcari,
An orchid for Racine.
The music swells for Wisconsin Dells,
Alike for Bowling Green.

●

May Clay and Jackson merge in Kansas City
And "Peace on Earth, Good Will" be now
their ditty.
May motor cars pour out from Pontiac
And retail sales go up in Hackensack.

●

For Ishpeming and Silver Spring
We wish prosperity,
For Waterloo and Kalamazoo
Perpetual harmony.

●

In gay Miami and cold Beltrami
Alike the sun doth shine.
In Tallahassee, also Wenatchie,
The weather's always fine.

●

In short, for all our cities everywhere,
May Nineteen-Fifty-One be smooth and fair,
May problems in finance be far between,
Relations with the public all serene.

●

May valuations rise and debt go down,
May citizens appreciate their town.
May population grow—but not too fast—
May all go well this year, from first to last!

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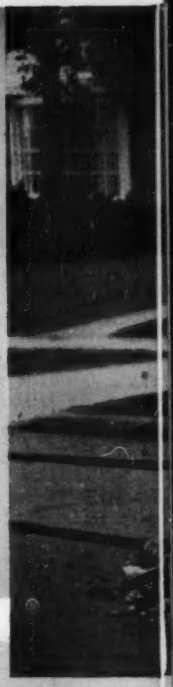
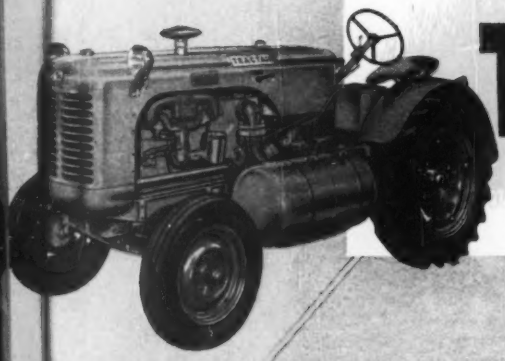
Le Roi gives you more for your MONEY!

more versatility
more profits

Combination bucket and crane boom. Crane boom folds back out of way when not in use. Bucket holds 10½ cu. ft. — lift capacity 1000 lbs. Crane lift capacity 800 lbs.



TRACTAIR



Tractair Mobildrill — a compressor and wagon drill in a single, self-contained, self-propelled unit. Universal mounting and swinging boom permits drilling at any angle. Drilling is easier and faster thanks to Le Roi-CLEVELAND air feed.

Loader with backfill blade in place of bucket. Width 6', mold board height 2'8", maximum lift above ground 1'4".

Trac-Jac consists of a Le Roi-CLEVELAND air-feed sinker drill mounted on Tractair. Feed and drilling controls are within easy reach of the operator. The mobility of this unit makes it ideal for mud-jacking and many other applications.

—Money-saving Handy Man

Combines air power and horsepower to give you greater utility for lower costs

HERE'S air power — 105 cfm — that really gets around! Good traction, low center of gravity, and Tractair's 35-hp engine give you outstanding mobility — self-propelled mobility that doesn't tie up trucks and men; mobility that saves you time and money.

That's why Le Roi Tractair can take air power anywhere any time. That's why you can make more use of work-saving Le Roi-CLEVELAND air tools to cut your costs further.

Just add a front-end loader (with its 8 quickly interchangeable accessories) and you multiply Tractair's usefulness. Not only will it handle breaking, clay digging, drilling, and tamping; but also loading, lifting, backfilling, snow-plowing, etc.

Yes, Tractair is a money-saving handy man. Watch one work — you'll see why. Make arrangements with your nearby Le Roi distributor. A new Tractair loader bulletin and job-data sheets are available. They show how Tractair saved money for others. Just write for them.

T-14

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- The largest award in parking meter history.
- After years of exhaustive study, research and tests, the City of Chicago has chosen the MILLER manual parking meter.
- Its rigid construction, simplicity of operation, and economy have again proven MILLER the outstanding meter of the industry.
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835 NO. WOOD STREET **DUNCAN PARKING METER CORP.** CHICAGO

Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

A New Year's Round-Up Of Many Recent Zoning Cases

NOTE: This month's column will review a large number of cases which, while not important enough for detailed analysis, contain points of some interest.

Natural Resources

WATER—CALIFORNIA. *People* v. *City of Los Angeles*, 214 Pacific (2d) 1 (California Supreme Court, February 7th, 1950). When Los Angeles tapped the Owens River around 1920 for its water supply, Owens Lake was left practically dry; and the State of California leased the bed of the lake for the exploitation of mineral deposits. After Los Angeles opened new sources of water in the Mono Basin beyond Owens Valley in 1939, the California courts in long litigation held that the Los Angeles water officials could not reflood Owens Lake as long as their aqueduct could carry off excess water. In 1941 a new dam was completed at the head of Owens Valley. In the present case the Court held that the City was obliged to use the full storage facilities of the new dam to prevent Mono water from overflowing into Owens Lake, but need not do so to control excess water from the Owens River.

MAINE. *Kennebunk, Kennebunkport and Wells Water District* v. *Maine Turnpike Authority*, 71 Atlantic (2d) 520 (Maine Supreme Judicial Court, February 9th, 1950). In building the Maine Turnpike the Turnpike Authority constructed a bridge over a stream known as Branch Brook in such a way as to make the water turbid, according to a complaint brought by a Water District which was using water from that brook. The Maine Court decided that the District had not yet shown that as a riparian owner they had a proprietary right to use the stream, and so remanded the case for trial. A sharp dissent suggested that the majority was unduly concerned with formalism in pleading.

SALMON—OREGON. *Anthony* v. *Veatch*, 220 Pacific (2d) 493 and 221 Pacific (2d) 575 (Oregon Supreme Court, June 30th and August 29th, 1950), and *Miles* v. *Veatch*, 220 Pacific (2d) 511 and 221 Pacific (2d) 905 (same court and dates). In these long opinions the Oregon Court upheld an act (adopted by initiative in the 1948 election) to prohibit the use of various types of fixed appliances for salmon fishing on the Oregon side of the Columbia River.

COAL—PENNSYLVANIA. *Commonwealth ex rel. Chidsey v. Black*, 69 Atlantic (2d) 376 (Pennsylvania Supreme Court, November 21, 1949). In this case the question of whether a proposed strip coal mine might result in polluting clear streams was held to be one to be decided by the State Sanitary Water Board, so that evidence taken on the question in the lower courts was irrelevant. Part of the confusion in the case apparently arose from faulty drafting of the State's original complaint.

GRAVEL—MASSACHUSETTS. *Town of Seekonk v. John J. McHale and Sons*, 90 North Eastern (2d) 325 (Massachusetts Supreme Judicial Court, February 6th, 1950). A contract to take gravel from land in a Residence A district, ostensibly to lower the level of the tract to that of existing gravel pits around it, was held illegal. The Court stated the increasing body of law on earth products as follows:

"The appealing defendant further contends that the zoning by-law is unconstitutional if it prevents the owner from removing a natural product from his land. But all zoning restricts an owner in the uses he could otherwise make of his property. There seems to us to be no difference in principle whether the restriction takes the form of preventing the owner from building a factory or from establishing a gravel business. In either case the question is whether the by-law as applied in the particular instance is a reasonable regulation of the use of the property in the public interest or an unreasonable and arbitrary interference with property rights. . . . Protection of a residential countryside against huge gravel pits is not unreasonable."

One- and Two-Family Residential Districts

ILLINOIS. *Drueck v. Peterson*, 91 North Eastern (2d) 124 (Illinois Appellate Court, March 8th, 1950).

MASSACHUSETTS. *Town of Brookline v. Co-Ray Realty Company*, 93 North Eastern (2d) 581 (Massachusetts Supreme Judicial Court, July 3, 1950).

NEW YORK. *Rodgers v. Village of Tarrytown*, 96 New York Supplement (2d) 58 (Appellate Division, March 13, 1950).

NEW YORK. *Gedney Estates v. City of White Plains*, 99 New York Supplement (2d) 111 (Supreme Court, May 31, 1950).

NEW JERSEY. *State v. Giller*, 68 Atlantic (2d) 489 (Appellate Division, September 29, 1949).

NEW JERSEY. *State v. Casper*, 68 Atlantic (2d) 545 (Appellate Division, October 4th, 1949).

ILLINOIS. *Pringle v. City of Chicago*, 89 North Eastern (2d) 365 (Illinois Supreme Court, November 22, 1949).

CALIFORNIA. Ex parte *Donovan*, 210 Pacific (2d) 860 and 216 Pacific (2d) 123 (California District Court of Appeal, March 28, 1950).

RHODE ISLAND. *Sweck v. Zoning Board of Review of North Kingstown*, 72 Atlantic (2d) 679 (Rhode Island Supreme Court, April 6, 1950).

KANSAS. *City of Wichita v. Wright*, 219 Pacific (2d) 350 (Kansas Supreme Court, June 10, 1950).

CONNECTICUT. *Rossini v. Freeman*, 71 Atlantic (2d) 98 (Connecticut Supreme Court of Errors, December 15, 1949).

This large group of cases illustrates again the difficulties of enforcing regulations, whether derived from a zoning ordinance or a covenant, to control the occupancy of buildings. Most of the cases are unexceptional, except as noted below.

In the *Drueck* case a large dwelling with 11 bedrooms was used as a cooperative residence by about 30 persons, mostly university students, in a one-family district in Chicago. When challenged as a violation of zoning regulations, the co-op argued that the set-up constituted one housekeeping unit, and pointed to other similar uses which were in the area. The Court held for the plaintiff, with the usual Illinois emphasis on the effect on property values.

In the *Brookline* case, the Realty Company proposed to build an L-shaped apartment building for 26 families on a corner lot, of which the front three-quarters was situated in a general residence district in Boston and the rear one-quarter in a one-family district in Brookline. While the building would be located wholly in Boston territory, the rear yard (required by Boston zoning regulations) and the service entrance would be in the Brookline portion of the lot. In the Brookline ordinance, all tracts located partly in Brookline were treated as if located wholly therein, and so the Court held that land located in a one-family area in Brookline could not be used for a rear yard and for the service entrance and service activities for an apartment house. The Court did not pass on the legality of the scheme under the Boston ordinance.

In the *Tarrytown* and *White Plains* cases, the Court upheld the creation of a special new residence district for garden apartments, and the re-zoning of specific areas to that district. The new Tarrytown district restricted the intensity of development to about the same as would be permitted in the previous one-family district, and the Court upheld this in vigorous language:

"The board of trustees could reasonably conclude that a garden apartment development would not disturb peace and quiet in the area of plaintiff's residence, or affect its value to the extent that a permitted aviation field might. They did consider the individual units of construction possible under the original zoning, and by regulations for the new zone have held the number of families close to the number permitted originally. The board could consider the possibility that while the large estates remained, the bulk of the population was being concentrated along the most traveled thoroughfares. They could reasonably determine that for those who cannot own entire residences some of the quieter portions of the village

(*Continued on page* 141)

KARPARK PRESENTS THE HEADLINERS

IN

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Each a Star in its own right!

The Steel Head KARPARK SUPERIOR

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The Adaptable KARPARK UNIMATIC

The Low Cost KARPARK HUSKY

Each of the four models has the same basic qualities which assure successful operation

First in performance and first in providing every worthwhile feature, the KARPARK "First Family" of parking meters makes it possible for every city to have a parking meter system that exactly meets its own local conditions. Write for full information about the features that answer every problem whether it's vandalism; the need for occasional changes in parking regulations; or low investment cost.

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THE WISE CHOICE

KARPARK *Automatics*

THE KARPARK CORPORATION
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Zoning Notes

(*Continued from page* 139)

should be made available for construction of a type of dwelling greatly in demand throughout the metropolitan area, and which could attract young married people away from Tarrytown."

In the *White Plains* case the density of development was tripled in the new district; and in upholding the change the Court gave an interesting description of changes in the neighborhood.

Accessory Uses

NEW YORK. 140 *Riverside Drive v. Murdock*, 95 New York Supplement (2d) 860 (Appellate Division, March 29, 1950). A candy, tobacco, and newspaper counter was held to be a permitted accessory use for the convenience of guests in a hotel in residence districts, but not in apartment houses in the same districts. This distinction may be counted on to cause trouble in the future.

NEW JERSEY. *Collins v. Board of Adjustment of Margate City*, 67 Atlantic (2d) 332 (Superior Court, July 1, 1949), affirmed, 69 Atlantic (2d) 708 (New Jersey Supreme Court, December 5, 1949). Restrictions in a one-family district against the use of accessory buildings for residential purposes (except by servants) were upheld, even when the owner subdivided a lot so that the two-story accessory garage was on a separate lot. In the opinion Mr. Justice Heher made a strong statement in favor of high-class residence districts.

NEW YORK. *Slater v. Tookhill*, 93 New York Supplement (2d) 153 (Appellate Division, December 12, 1949). A variance was authorized for an underground garage in an apartment project.

Business Districts

NEW JERSEY. *Hopkins v. Municipal Board of Alcoholic Beverage Control of City of Newark*, 67 Atlantic (2d) 886 (Appellate Division, August 9, 1949). In a case involving establishments on opposite sides of the street, the Court held that the required distance of 750 feet between establishments with liquor licenses should be measured as a pedestrian could legally walk between the two places, and not necessarily at a crosswalk which was marked as such or which had traffic signals.

MARYLAND. *Easter v. Mayor and City Council of Baltimore*, 73 Atlantic (2d) 491 (Maryland Court of Appeals, May 12, 1950).

OKLAHOMA. *City of Tulsa v. Fred Jones Co.*, 220 Pacific (2d) 245 (Oklahoma Supreme Court, May 9, 1950).

NEW JERSEY. *N. T. Hegeman Co. v. Mayor and Council of Borough of River Edge*, 69 Atlantic (2d) 767 (New Jersey Superior Court, 1949).

In the Maryland case a 10-foot front yard requirement in a business district was held not subject to variance on the ground that a store building on the premises was partly hidden by a covered entrance to a tavern next door. The two adjacent owners were brothers.

In the Oklahoma case a front yard requirement was modified by a variance for a lot located where a street turned and narrowed, so that a proposed auto showroom would (if set back) be hidden from approaching motorists.

In the New Jersey case a set-back line established 67 feet from the street for a single block by a special ordinance was set aside, primarily on the ground that it was not properly adopted as an amendment to the zoning ordinance.

Size of Lot for Filling Station

CONNECTICUT. *Dadukian v. Zoning Board of Appeals of City of Bridgeport*, 68 Atlantic (2d) 123 (Connecticut Supreme Court of Errors, August 9, 1949).

A Connecticut statute provided that, before a license is issued for a filling station, the proposed site for the station should be approved by the local Board of Zoning Appeals. A filling station existed as a nonconforming use in a business zone in Bridgeport between 1929 and 1943, and was then closed. When an application was made for re-opening the filling station on the same lot, the Board of Zoning Appeals refused to approve, on the grounds that (1) the lot was too small for a filling station, since only two cars could be accommodated at one time, and (2) traffic had increased on the adjoining streets. The Court upheld the Board on both grounds, and pointed out that in this instance the Board of Zoning Appeals was operating not under the zoning law but under a separate enabling act.

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Better Sweeping for your money!

The big Mobil-Sweeper with its 2⅔ cu. yd. dirt hopper cleans more pavement . . . cleans it faster with fewer stops. It sweeps up and down steepest hills, around sharp corners. Cleans gutters slick as a whistle. The full-floating, self-aligning rear broom sweeps clean in deepest dips.

Whether you plan regular street sweeping or freeways and airports, too, you can get dual control, two gutter broom sweepers or the conventional sweeper to fit your needs. Mobil-Sweeper is the safest sweeper built. Four-wheel hydraulic brakes, steel-top cab, shatterproof windshield are all standard equipment. Protect your drivers and get cleaner streets with Mobil-Sweeper. Write today!

TWO GUTTER BROOM MODEL WITH DUAL DRIVING CONTROLS

CONVEYCO

MOBIL-SWEEPER
A DIVISION OF THE CONVEYOR CO
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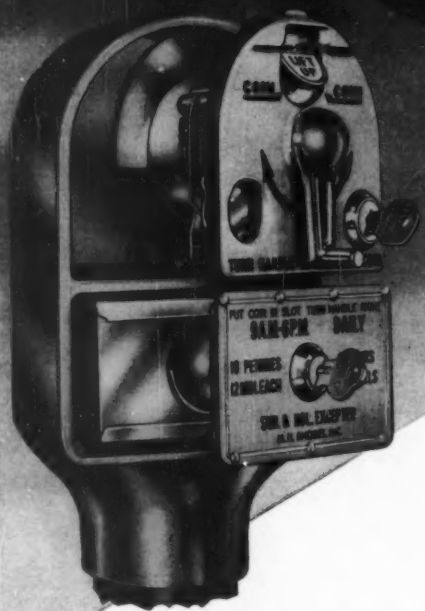
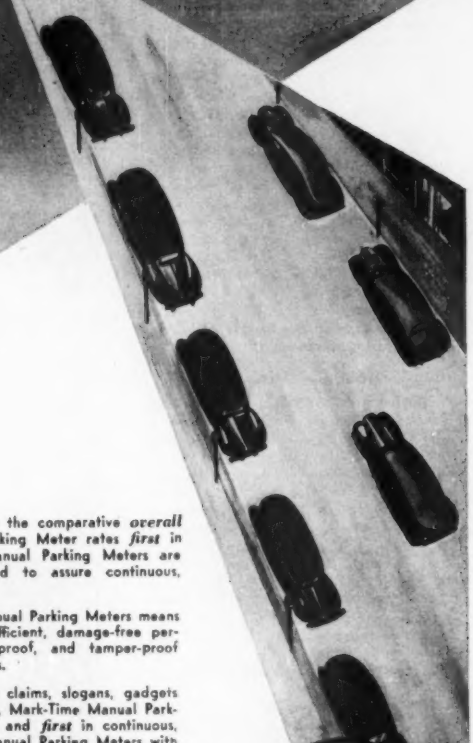
THE CONVEYOR COMPANY
3260 East Slauson Avenue, Los Angeles 58, Calif. AC-4
Gentlemen:
Please send catalog with complete details and specifications for the Mobil-Sweeper.

Name _____ Title _____
Address _____ City _____
County _____ State _____

MARK-TIME manual parking meters

FIRST in proven performance





When independent tests are made to determine the comparative *overall cost* of parking meter operation, the Mark-Time Parking Meter rates *first* in proven performance. That's because Mark-Time Manual Parking Meters are scientifically engineered and precision manufactured to assure continuous, economical operation.

The simple, rugged construction of Mark-Time Manual Parking Meters means lowest cost of maintenance and highest degree of efficient, damage-free performance. Special Mark-Time weather-proof, theft-proof, and tamper-proof features mean built-in protection against revenue loss.

Mark-Time superiority is based on facts, not on claims, slogans, gadgets or fancy trimming. Point by point, feature by feature, Mark-Time Manual Parking Meters are *first* in efficiency, *first* in economy, and *first* in continuous, revenue-protecting operation. Compare Mark-Time Manual Parking Meters with other parking meters and the answer is Mark-Time . . . *every time!*

Manufactured and sold in Canada by Ontario Hughes Owens Co., Ltd., of Ottawa, Ontario.

MARK-TIME

M. H. RHODES, INC. HARTFORD, CONN.

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

Julian H. Orr
Bangor, Maine

Jack S. Branum
Burnet, Texas

Alvin W. Morland
Mountain Brook, Ala.

Edgar T. Ham
Redlands, Calif.

Carl S. Burbridge
Altavista, Va.

RICHARD P. BRICE, JR., formerly with R. Stuart Royer and Associates, has succeeded R. J. ROUNTREE, JR., as manager of Narrows, Va.

On December 5, Princess Anne, Md., appointed HARRY W. BUKER as town manager. Formerly he was division manager of the Diesel Engine Division of the Chicago Pneumatic Tool Co.

LATHROP CRAIG, city engineer, has been appointed acting city manager of Thomasville, Ga. He succeeds C. E. LAYTON.

STEPHEN A. DERRY has succeeded J. F. GIBBS as manager of Oak Park, Mich.

NEAL HARR, manager of Belleville, Kans., has accepted the appointment at Golden, Colo.

E. W. MEISENHELDER, III, manager of Fernandina, Fla., since 1946, has accepted the position as first manager of Park Forest, Ill.

O. B. O'DELL has been appointed manager of Arlington, Texas, and C. E. THOMPSON is the new manager of Bonham, Texas.

ORVILLE F. OBER, at present a student in government, will become the first manager of Lititz, Pa., in February 1951.

THEODORE E. RIDLEY, administrative assistant at Muskegon, Mich., will become city manager of Slater, Mo., on January 2. He succeeds NEWELL N. JENKINS.

E. R. STALLINGS, manager of Charleston County, S. C., will become the first manager of San Mateo County, Calif., in January.

C. W. STEPP, formerly superintendent of the Oil State Refinery, is now the manager of Yale, Okla.

THOMAS TELFORD, executive director of the Housing Authority of Clackamas County, Ore., took office as manager of Milwaukie, Ore., on December 1.

CLARENCE E. RIDLEY, *Director*
International City Managers' Association

The Age of Hijackings

CRIMES against property have been increasing ever since the end of the war. Not as sensational as crimes against persons, these thefts, larcenies, hijackings, and other property attacks do not get too much local attention—in many cases they are not even reported. There have been numerous cases where crooks, once captured, have confessed to unrecorded thefts.

Having become an important factor in consumer-goods cost, and because these crimes against property are the breeding ground for juvenile delinquency and an easy step into crimes against persons, they become a matter for universal study and attention as a part of every individual's good citizenship.

By way of illustration, let's take truck-cargo hijackings. There are many of these today, many more than before the war. Their toll is large in dollars, in community disturbance, and in moral disintegration. But just what can be done to prevent these cargo thefts?

Police study of case after case brings out this fundamental fact—in virtually every theft, there was some degree of invitation to the theft. That is, almost every case history shows some lack of adequate precaution on the part of either the shipper or the trucker, or both. In fact, the insurance underwriter might even be brought into this general picture, for the failure of the shipper or trucker to make use of maximum known protection stems from lack of underwriting pressure.

The "slip" which led in devious ways to the actual crime was undoubtedly a detail not even recognized, as outside the pale of good business management. But let's see what kind of "slip" is encountered. Well, here's exhibit "A"—a trucker who did not make an adequate pre-employment check of his personnel, and the hijacking turned out to be a case of collusion between an outside crook and the driver, who had a bad record. Exhibit "B" is a case where an inadequate check of goods at the loading platform permitted a fake driver with a substitute truck, arriving just before the scheduled truck was due, to get away openly and without effort with an entire load, right under the shipper's nose.

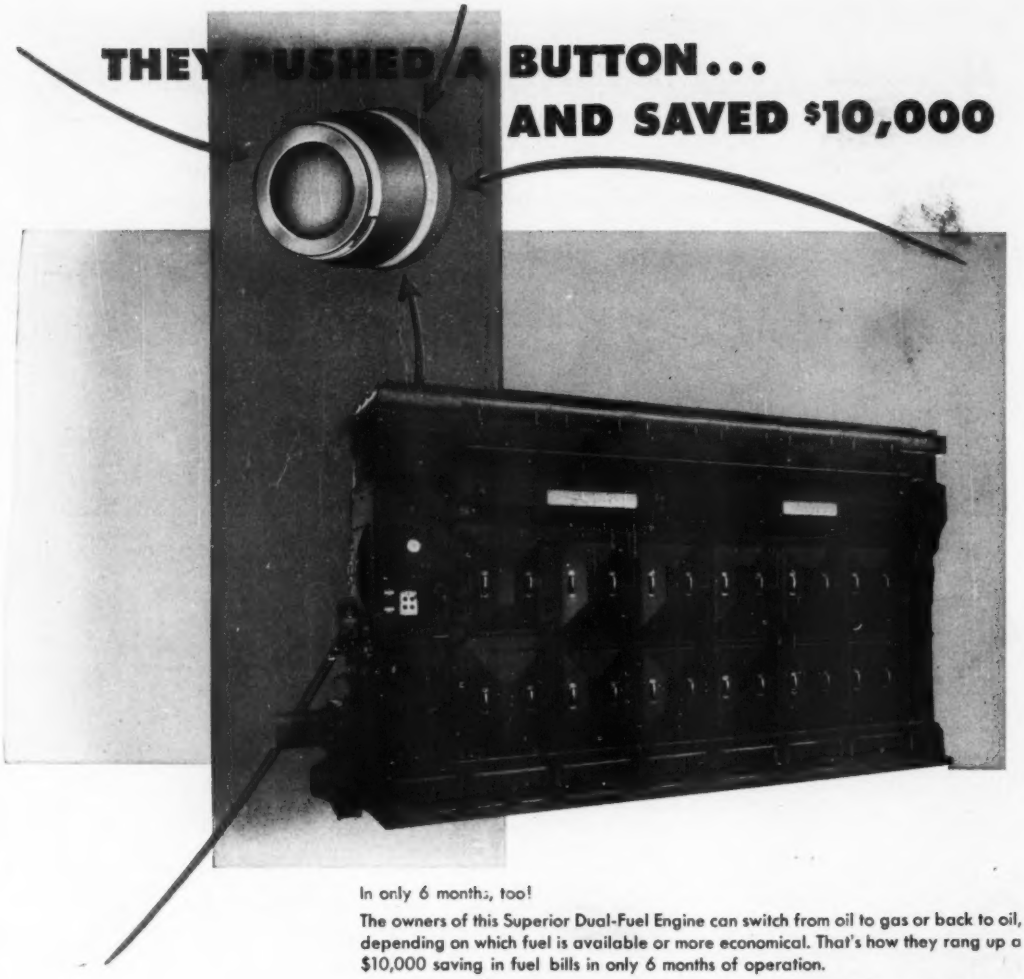
Exhibit "C" is a case of a motor carrier with a rather high theft rate over several years, hauling high-risk goods—liquor—without benefit of the alarm protection which is usually found on such vehicles—with a resultant big-load theft.

No Alarm Protection

Our crooks are clever today. They are not usually casual newcomers. The efficiency of their work is demonstrated by their ability to dump big loads overnight through their private channels. It's a big-time operation and one that this country needs to bring under control quickly.

JAMES M. GLEASON, *President*
International Association of
Chiefs of Police
Police Chief, Greenwich, Conn.

THEY PUSHED A BUTTON... AND SAVED $10,000



In only 6 months, too!

The owners of this Superior Dual-Fuel Engine can switch from oil to gas or back to oil, depending on which fuel is available or more economical. That's how they rang up a $10,000 saving in fuel bills in only 6 months of operation.

Owners of these engines can run them on diesel oil, natural gas or waste gas. A push of a button promptly switches the engine from one fuel to the other.

Maintenance costs stay low on Superior and Atlas engines, whatever the fuel. Extra precision, conservative ratings, extra strength and the dependable, economical 4-cycle principle combine to make a Superior or an Atlas Engine your best buy over the years. Continent-wide parts and service facilities assure you of dependable service from your engines. A combined 100 years of Superior-Atlas engineering and engine-building are your assurance of the best design and construction.

Write for bulletins describing Superior and Atlas engines to meet your requirements, in sizes up to 1500 horsepower.

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ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

DIESEL ENGINES . . . NATURAL GAS ENGINES . . . DUAL FUEL ENGINES

Conventions — When and Where

Conventions listed this month for the first time are indicated by an asterisk (*).

Jan. 9-12—Washington, D. C.
HIGHWAY RESEARCH BOARD. Annual Meeting (National Academy of Science). Dir., Roy W. Crum, 2101 Constitution Ave., Washington 25, D. C.

Jan. 16—New York, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Winter Meeting (Hotel Park-Sheraton). Sec.-Treas., R. K. Blanchard, 50 West 50th St., New York, N. Y.

Jan. 19-20—New York, N. Y.
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Hotel Statler). Exec. Sec., R. C. Sweeney, State Health Dept., 21 North Broadway, White Plains, N. Y.

Jan. 28-Feb. 1—Chicago, Ill.
ASSOCIATED EQUIPMENT DISTRIBUTORS. Annual Meeting (Hotel Stevens). Exec. Sec., P. D. Herrmann, 360 North Michigan Ave., Chicago, Ill.

***Jan. 29-30—St. Louis, Mo.**
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Meeting (Hotel Chase). Corr. Sec., Bradford Williams, 9 Park St., Boston 8, Mass.

Feb. 5-7—Denver, Colo.
THE ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Hotel Cosmopolitan). Exec. Sec., Ward K. Parr, 1223 East Engineering Bldg., Ann Arbor, Mich.

Feb. 6-8—Buffalo, N. Y.
ASSOCIATION OF TOWNS OF THE STATE OF NEW YORK. Annual Meeting (Hotel Statler). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

Feb. 7-9—Indianapolis, Ind.
AMERICAN WATER WORKS ASSOCIATION—Indiana Section. Annual Meeting (Hotel Lincoln). Sec.-Treas., George Fassnacht, State Board of Health, Indianapolis, Ind.

***Feb. 14—Newark, N. J.**
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Winter Luncheon Meeting (Hotel Essex House). Sec., C. B. Tygert, Box 178, Newark 1, N. J.

Feb. 15-16—Ann Arbor, Mich.
THIRD IN-SERVICE TRAINING COURSE IN WATER-WORKS PROBLEMS. University of Michigan. H. E. Miller, Resident Lecturer, School of Public Health Building, 109 South Observatory St., Ann Arbor, Mich.

***Feb. 21-23—West Lafayette, Ind.**
INDUSTRIAL WASTE UTILIZATION CONFERENCE. Annual Conference. Purdue University (Memorial Union). Chrmn., D. E. Bloodgood, School of Engineering, Lafayette, Ind.

Feb. 26-March 1—Boston, Mass.
ASSOCIATED GENERAL CONTRACTORS OF AMERICA. Annual Convention (Hotel Statler). Dir., H. E. Foreman, 1227 Munsey Bldg., Washington, D. C.

March 1-3—New York, N. Y.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Hotel Waldorf-Astoria). Mng. Dir., H. F. Peckworth, 228 North LaSalle St., Chicago 1, Ill.

March 6-9—Atlantic City, N. J.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES (Hotel Traymore). Sec., A. Lee Grover, State Highway Dept., 1035 Parkway Ave., Trenton, N. J.

March 9-11—Washington, D. C.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Meeting (Hotel Statler). Sec.-Treas., Laverne Burchfield, 1313 E. 60th St., Chicago 37, Ill.

March 11-15—College Station, Texas
TEXAS WATER AND SEWAGE WORKS ASSOCIATION. Annual Meeting (Texas A. & M. College). Exec. Sec., V. M. Ehlers, Director, Bureau of Sanitary Engineering, State Health Dept., Austin, Texas.

March 12-14—Milwaukee, Wis.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Meeting (Hotel Schroeder). Pres., E. R. Needles, International Bldg., Washington, D. C.

March 13-15—Grand Rapids, Mich.
MICHIGAN HIGHWAY CONFERENCE. Annual Meeting (Hotel Pantlind). Bus. Mgr., A. O. Cuthbert, 120 Ottawa St., Lansing, Mich.

March 14-16—Atlantic City, N. J.
NEW JERSEY SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Hotel Chalfonte-Haddon Hall). Sec.-Treas., Michael S. Kachoraky, 345 No. Eighth Ave., Manville, N. J.

March 18-20—Chattanooga, Tenn.
SOUTHERN ASSOCIATION OF CHAMBER OF COMMERCE EXECUTIVES. Annual Convention. Sec.-Treas., Floyd Kay, Charlotte, N. C.

March 26-29—Lafayette, Ind.
PURDUE ROAD SCHOOL (Union Bldg., Purdue University). Exec. Sec., Ben H. Petty, Professor Highway Engineering, CE Bldg., Purdue University, Lafayette, Ind.

April 11-13—Hays, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section. Annual Meeting (Hotel Lamer). Sec.-Treas., Harry W. Badley, 640 Highland, Salina, Kans.

April 11-13—Hays, Kans.
KANSAS SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Lamer). Exec. Sec., Dwight Metzler, Kansas State Board of Health, Marvin Hall, University of Kansas, Lawrence, Kans.

***April 15-18—Miami Beach, Fla.**
ASSOCIATION OF STATE PLANNING AND DEVELOPMENT AGENCIES. Annual Meeting (Hotel Sherry-Frontenac). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

***April 20-21—Helena, Mont.**
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Hotel Placer). Exec. Sec., A. W. Clarkson, Montana State Board of Health, Helena, Mont.

***April 23-28—Dallas, Texas**
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Meeting (Hotel Baker). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

***April 29-May 4—Miami, Fla.**
AMERICAN WATER WORKS ASSOCIATION. Annual Convention (Dinner Key and Municipal Auditorium). Exec. Sec., Harry E. Jordan, 500 Fifth Ave., New York 18, N. Y.

May 7-9—Chattanooga, Tenn.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Read House). Gen. Mgr., Carlton L. Nau, 1757 K St., NW., Washington, 6, D. C.

***May 7-11—Detroit, Mich.**
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Convention (Hotel Statler). Gen. Mgr., Percy Bugbee, 60 Batterymarch St., Boston 10, Mass.

May 8-11—Chicago, Ill.
AMERICAN INSTITUTE OF ARCHITECTS. Annual Convention (Hotel Edgewater Beach). Exec. Dir., Edmund R. Purves, 1741 New York Ave., NW., Washington 6, D. C.

May 13-18—Atlantic City, N. J.
NATIONAL CONFERENCE OF SOCIAL WORK. Annual Meeting (Hotel Traymore). Exec. Sec., Joe R. Hoffer, 22 W. Gay St., Columbus 15, Ohio.

***June 27 or 29—Trenton, N. J.**
AMERICAN WATER WORKS ASSOCIATION. New Jersey Section. Summer Meeting (Inspection of De Laval Steam Turbine Company Plant, and Luncheon). Sec., C. B. Tygert, Box 178, Newark 1, N. J.

Cutting the Seconds From Fire-Alarm Operation

WHETHER it is a telephone or box alarm, the Akron (Ohio) operator turns in his swivel chair to a cross-index card file that establishes where the fire is located. He touches a button that gives a signal to all fire stations. He then announces by Gamewell Vocalarm which companies are to run and the location of the fire.

The operator also controls the means to clear the streets for the apparatus. Federal fire sirens are installed at 28 main intersections and connected to fire-alarm headquarters. The operator sounds the sirens at the intersections that will be crossed in getting to the particular fire. He also turns all signals red in the area. Then the Gamewell telegraph alarm is sent by ticker in the regular way, but by then the apparatus is rolling.

As soon as the apparatus clears the red-light blocks, traffic again moves normally. RCA two-way radio on all trucks keeps headquarters informed where they are at all times. In one instance, a truck dispatched to a grass fire was sent to ten other grass fires before returning to its station. As in other cities, mobile emergency radio has increased apparatus coverage by a minimum of 25%.

The Akron Fire Department is a member of the Summit County Volunteer Association. The other departments in this association have more men and apparatus than the three industrial cities of Akron (1940 pop. 245,000), Barberton (24,000), and Cuyahoga Falls (21,000). A county-wide radio-communications network is being set up to serve all these communities and their apparatus.

RAY J. MYERS
Superintendent of Signals
Akron, Ohio

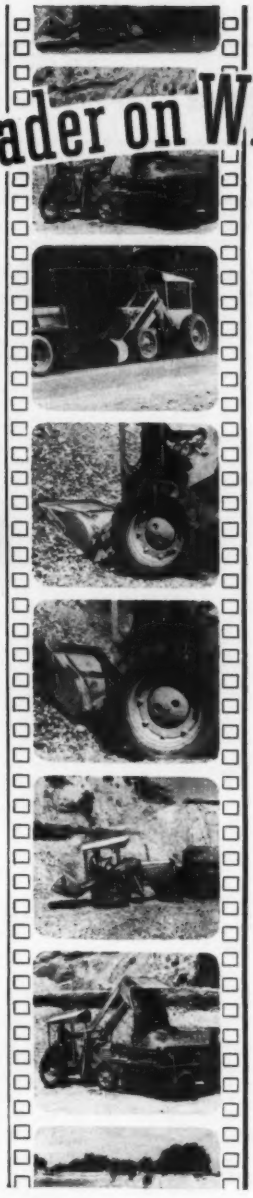
Now... the Most Versatile Loader on Wheels!

Here's the most versatile, practical loader ever developed for wheel tractors. It can dig in front . . . dump in front like the conventional loader. BUT, it can also dig in *back* and load in *front.*

You can dig in back . . . move straight forward to the truck . . . the bucket swings *straight over* the roof . . . and the load is dumped into the truck. Thus you eliminate the turning necessary with ordinary front end loaders . . . eliminate *half* the gear shifts and *half* the clutch wear. You save time and fuel . . . cut operator fatigue. You speed loader operations . . . *can load at better than a yard a minute.*

You get far greater traction and almost effortless steering with the Strait-Line. Rear-carried bucket load adds needed weight to the rear driving wheels . . . subtracts weight from the front steering wheels. Increased traction plus the new PUSH-TILT bucket with extended loading lips, enables you to get bigger bucket loads. Two levers control all operations.

Add them all up . . . ability to select your type of digging, front or back as the job requires . . . Strait-Line operation with back digging which gives you faster operation, greater traction and easy steering . . . fuller buckets . . . and you'll see where your operations can profit with the Strait-Line. For information and literature, see your Oliver Industrial Distributor or write direct to The OLIVER Corporation, 19300 Euclid Avenue, Cleveland 17, Ohio.



Conventional front digging, primarily used with Strait-Line where unit digs and moves straight ahead to load.

Back digging. Note how extended loading lips easily penetrate the bank.

PUSH-TILT action which lifts cutting edge 20" and thrusts it into bank.

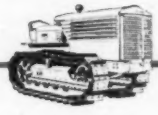
Carrying position—bucket is tilted to retain load and is carried low enough to increase both traction and stability.

Dumping position. Bucket has been carried over the roof and dumps in front.

THE OLIVER CORPORATION

A complete line of industrial wheel and crawler tractors

"FINEST IN INDUSTRIAL MACHINERY"



THE OLIVER CORPORATION

The Sign of Extra Service

Municipal and Civic Publications

Clean Water—Its Importance

CLEAN WATER IS EVERYBODY'S BUSINESS—*Public Health Service, Federal Security Agency. Public Health Service Publication No.* 11. *U. S. Government Printing Office, Washington* 25, *D. C.* 1950. 26 *pp. Single copies available without charge from Public Health Service. 20 cents apiece for quantity orders from Superintendent of Documents.*

An attractively illustrated booklet which describes the effect of water pollution on all aspects of life, especially health, business, and recreation, and points out the need for cooperation among communities, industry, and state and federal governments in pollution prevention and abatement. It explains how in five steps a program of public action can be carried out to develop comprehensive water-pollution control programs, stimulate construction of treatment works, provide technical aid and research, encourage recovery and use of waste products, and invoke enforcement measures when necessary.

Evaluating Local Public Health Services

WHAT'S THE SCORE?—EVALUATION OF LOCAL PUBLIC HEALTH SERVICES—*Committee on Administrative Practice, American Public Health Association.* 1790 *Broadway, New York* 19, *N. Y.* 1950. 52 *pp.*

The purpose of this attractively printed booklet is to show how the evaluation process has been used—and can be used—to improve local health services. The booklet describes how the evaluation of local public health services developed, and how the machinery can be set in motion, with the help of interested citizens, for determining health needs.

New Tax Foundation Report

FACTS AND FIGURES ON GOVERNMENT FINANCE, 1950-1951—*Published by The Tax Foundation,* 30 *Rockefeller Plaza, New York* 20, *N. Y.* 1950. 224 *pp.* $2.

This sixth edition of the Tax Foundation's biennial publication contains 165 tables and 11 charts, all indexed for ready reference. The subject matter of the book has been expanded to include separate sections on the nation's economy, business, investment and productivity, as well as more extensive treatment of particular expenditure and tax data.

"The Impact of the 1940's on the American Economy," the first table in the book, keynotes the entire volume, which illustrates the growing influence of government on everyday affairs, the increased American production of goods and services, and the inflationary factors of the period.

A Community Action Manual

YOUR COMMUNITY — ORGANIZING FOR ACTION — *Published by League of Minnesota Municipalities and Minnesota State Department of Business Research and Development. League of Minnesota Municipalities, University of Minnesota, Minn. September* 1950. *Illus.* 35 *pp.*

This well-written, attractive booklet is aimed at the conscientious community citizen interested in accelerating the pace of community progress.

The booklet outlines what he can do, and specifically describes how a community council can be formed, and what such a council can do to bolster the efforts of elected municipal officials, as well as initiating and obtaining public support for new projects. Examples are given of projects which have been successful elsewhere. Recommendations are made on how community councils should proceed with their programs.

The appendices include suggested by-laws for a community council, and long lists of organizations and institutions to which local community councils can apply for aid in particular fields.

Civil Engineering

CIVIL ENGINEERING HANDBOOK—*Third Edition. By Leonard C. Urquhart. McGraw-Hill Book Co.,* 330 *W. 42nd St., New York* 18, *N. Y.* 900 *illustrations, tables and diagrams.* 976 *pp.* $8.50.

A text designed to be a one-book library for the practicing civil engineer, and it almost succeeds. It is divided into ten sections and covers surveying; railway, highway and airport engineering; mechanics; hydraulics; structures; steel design; cement and concrete; foundations; sewerage, and water supply. This text, coordinated with other references that the civil engineer may have, should be a valuable addition to his technical library.

Public Relations for Firemen

THE INDIVIDUAL FIREMAN'S RESPONSIBILITY IN PUBLIC RELATIONS—*National Fire Protection Association, 60 Batterymarch St., Boston* 10, *Mass.* 1950. 20 *pp.* 35 *cents.*

Prepared by the Committee on Firemen's Training, this attractive booklet is designed to supplement "A Public Relations Manual for Fire Departments," also published by the National Fire Protection Association. Where the previous publication deals largely with the "tools" of public relations and their organized use by designated members of the department, the present publication, directed to the individual fireman, emphasizes the importance of everyday actions on the part of every member of a department. The booklet is designed for training purposes, and should also be recommended reading for every individual fireman who is interested in his work.

Individual and Community Mental Health

FAMILY, COMMUNITY AND MENTAL HEALTH—PROFILES OF COMMUNITY ACTION—*By Bernice M. Moore and Robert L. Sutherland. The Hogg Foundation, University of Texas, Austin, Tex.* 1950. 64 *pp.* 50 *cents.*

An unusual, highly readable publication which attempts to describe and evolve principles for community action. Emphasized especially is citizen participation so that communities can change their previous cultural patterns and offer more in the way of supplementary services so that individual maladjustment will not be so great.

In general, the booklet compares mental health in the individual to mental health in the community, and shows how each affects the other. The publication is based on various community-action programs which have been undertaken in Texas.

Off-Street Parking Report

MUNICIPAL OFF-STREET PARKING, SUPPLEMENT TO BULLETIN NO. 76, "MUNICIPAL OFF-STREET PARKING SYSTEMS"—*Published by Regional Plan Association, Inc.,* 205 *E. 42nd St., New York* 17, *N. Y. October* 1950. *Mimeo.* 35 *pp.* $2.

This booklet supplements information contained in the Regional Plan Bulletin No. 76, entitled "Municipal Off-Street Parking Systems." It provides the full details obtained about the specifics of the parking systems of each municipality reporting in the original bulletin. Included is information about the number of car spaces provided in each municipality, costs, how long the various programs have been in operation, and how successful they have been. A number of photos are also included. The publication is an encouraging report of progress on a problem which affects almost every community in the United States.

Washington, D. C., Plan

WASHINGTON PRESENT AND FUTURE, A GENERAL SUMMARY OF THE COMPREHENSIVE PLAN FOR THE NATIONAL CAPITAL AND ITS ENVIRONS—*By National Capital Park and Planning Commission. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington* 25, *D. C.* 1950. 48 *pp.* $1.50.

This report, datelined April 1950, was prepared before the launching of the N.S.R.B. proposal to disperse government establishments for defense reasons. Yet the report shows that the Planning Commission much earlier was thinking of the plan for the nation's capital in terms of decentralizing federal employment centers throughout the region.

The report is handsomely illustrated, and the text is written for the layman. It contains 24 maps, 10 of which are in full color. The two fold-in maps inside the back cover present the Comprehensive Plan for the District and the proposals for the region.

The aims of the plan are set forth, together with the factors in developing and carrying it out. The use of redevelopment as a method to create new urban environment is outlined and illustrated. The proposed plan for a regional system of express highways and parkways and other types of thoroughfares is presented. In addition, park, playground and school needs are cited.

The report is a tremendous step forward in the presentation of material to the public which will aid it in understanding the needs and problems of the Washington region, and as a pace setter for similar reports for other urban areas.

Municipal Insurance

INSURANCE FOR GOVERNMENTS—*Vol. XXIII, No.* 2, *November* 1950 *issue of* Municipal Finance. *Published by the Municipal Finance Officers Association,* 1313 *E. 60th St., Chicago* 37, *Ill.* 28 *pp.* 50 *cents per copy.* (*Sub., $1.50 per year.*)

This symposium on insurance for municipal governments includes the following articles: "Municipal Fire Insurance Practices," by Orin F. Nolting; "Municipal Insurance Practices in Canada," by E. A. Danby; "Automobile Insurance for Municipalities," by John W. English; "Automobile and Public Liability Insurance," by William Hunrick, Jr.; "A Self-Insurance Plan," by Hugh R. Catherwood; "Employee Group Insurance," by Davetta L. Steed; "Public Official Bonds," by Philip P. Laing; and "Selected References on Government Insurance," by Marianne Yates.

Questions About Your Schools

WHAT DO WE KNOW ABOUT OUR SCHOOLS?—*Published by the National Citizens Commission for the Public Schools,* 2 *West 45th St., New York* 19, *N. Y.* 36 *pp.* 1950.

A collection of questions for people to ask about their local schools. These were compiled by 200 people including school superintendents, teachers, school board members, leaders of citizen committees, and representatives of national organizations with an interest in the schools. They come from rural, suburban and metropolitan areas of 40 different states and should prove useful to individual understanding and for committee discussion.

City Finances in 1949

LARGE-CITY FINANCE. IN 1949—*U. S. Bureau of the Census, Washington* 25, *D. C. Report No.* 3. 56 *pp.* 1950.

Advance report of the data for the 37 cities having over 250,000 inhabitants in 1940. Composed of 34 tables, giving summaries of finances; comparisons of revenue sources and distributions; expenditures for operation, general control, highways, sanitation, health, hospitals, public welfare, recreation, etc.; debt retirement; and city employee-retirement figures.

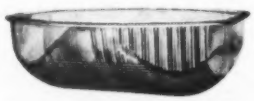
HOLOPHANE REFRACTORS with MERCURY LAMPS Provide Effective, Efficient and Practical STREET LIGHTING

GREENVILLE, OHIO
for example

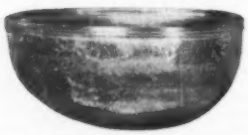
has obtained an outstanding new lighting installation with excellent illumination on the street, sidewalks and building fronts as shown in the "before and after" photos at the right.

Photos: Courtesy Dayton Power and Light Co., Dayton, Ohio

Holophane #4004 C-WAY* REFRACTOR for Westinghouse OV-20 luminaire (IES Type II)



Holophane #4003 B-WAY* REFRACTOR for Westinghouse OV-20 luminaire (IES Type III)



Holophane #4070 B-WAY* VERTILATERAL* REFRACTOR for General Electric Form 109 luminaire (IES Type III)

Many progressive communities find it desirable to use the mercury light source — for economical, enduring street illumination . . . To achieve the ultimate in spectacular or "White Way" lighting — for efficient, high illumination in business streets, traffic thoroughfares or throughways, use the modern Holophane Refractor-equipped luminaires for horizontal burning mercury lamps . . . This perfect combination provides highest utilization of light over the street area. Correct lateral distributions are assured for different street widths. Horizontal lamp position in combination with the light-controlling Refractor produces proper vertical distribution to minimize glare . . .

These Refractor-equipped luminaires can also be used with incandescent lamps up to 15,000 lumens — providing low cost, highly effective and efficient street illumination . . . Holophane engineers have perfected a complete line of Refractors for all sizes of lamps, with all types of distributions, for all street and traffic requirements. Specify Holophane Refractors for YOUR Street Lighting!

*Reg. U. S. Pat. Off.

Holophane

HOLOPHANE COMPANY, INC.

Lighting Authorities Since 1898 • STREET LIGHTING DEPARTMENT, NEWARK, OHIO

THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

When Industry Leaves a City

STEELTOWN, AN INDUSTRIAL CASE HISTORY OF THE CONFLICT BETWEEN PROGRESS AND SECURITY—*By Charles R. Walker. Harper and Brothers, 49 East 33rd St. New York 16, N. Y.* 1950. 284 *pp.* $4.50.

Steeltown is an on-the-spot study of what happens when a large industry decides to close down and move out of a small community. In the specific case reported here, Ellwood City, a town of a population of 14,000 in the great coal and iron region of western Pennsylvania, the plant, employing two-thirds of the industrial wage-earners of the community, was to be transferred to another state.

From the time of the initial decision and announcement of the move, the author and his staff, from the Institute of Human Relations at Yale, were on the scene observing the consequences through every segment of the community. The attitudes and problems of company managers, union leaders, workers and their families, shopkeepers of the town and others were closely studied to learn why some joint efforts to deal with the complexities of the problem succeeded, and why some failed.

The study should be of interest to community leaders and planners because it reports a major managerial decision involving technological change, and also indicates a pattern of description and analysis which suggests factors in the determination of human behaviour as well as alternative paths of action.

Government Policies and Real Estate Finance

THE IMPACT OF GOVERNMENT ON REAL ESTATE FINANCE IN THE UNITED STATES—*By Miles L. Colean. National Bureau of Economic Research, Inc., 1819 Broadway, New York 23, N. Y.* 1950. 171 *pp.* $2.50.

This is a scholarly and comprehensive review of the impact of federal, state, and local governmental policies on real-estate finance and development. The growth in number and types of controls is spelled out.

Particularly stressed is the need for careful consideration and coordination of existing controls, so that they will not impede or hamper legitimate and desirable real-estate activity. The author expresses the pessimistic point of view, however, that there is little reason to believe that a means for bringing consistency into the vast range of governmental impacts on real-estate finance is likely to occur in the near future.

City Finances in 1949

COMPENDIUM OF CITY GOVERNMENT FINANCES IN 1949—*Governments Division, Bureau of the Census, U. S. Department of Commerce. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.* 1950. 98 *pp.* 40 *cents.*

This highly useful report contains financial information and breakdowns of revenues and expenditures for the 397 cities with a 1940 population of 25,000 or more. The report shows that they spent $4,500,000,000 for governmental purposes in 1949, as against $4,100,000,000 the previous year and less than $3,500,000,000 in 1947. The report includes information on various city enterprises, such as water-supply system finances and selected items of electric light and power system finances, shown city by city, as well as many other tables packed with material of value for everyone interested in the financial status of American city government.

More Research Urged

CITIZENS AT WORK—*Prepared by the Citizens' Governmental Research Bureau, 125 East Wells St., Milwaukee 2, Wis.* 1950. 22 *pp.* 15c *postage stamps or coin.*

In an effort to obtain additional funds to expand its services, the Citizens' Governmental Research Bureau has published this booklet describing its functions and the importance of its work in supplying greater knowledge of Milwaukee's government to the public.

Traffic and Drive-In Theaters

POLICY ON DRIVE-IN THEATERS—*American Association of State Highway Officials, prepared with the cooperation of Nebraska Department of Roads and Irrigation. C. W. Prisk, Secretary, AASHO Operating Committee on Traffic, Bureau of Public Roads, Washington, D. C.* 1950. 35 *pp. Appendices.*

A project of the Subcommittee on Roadside Control, Committee on Traffic of the American Association of State Highway Officials, this excellent study is the product of considerable intensive research on the traffic problems created by drive-in theaters. The report deals with a traffic problem that is only now emerging in its full proportions, and the solutions recommended in the report, based on study of several hundred existing drive-in theaters, are most timely. Recommendations are made for public controls which can be exerted over the design and location of such theaters, and suggested design sketches are reproduced.

Federal Reorganization Problems

ESSAYS ON FEDERAL REORGANIZATION—*By Herbert Emmerich. University of Alabama Press, University, Ala.* 159 *pp.* 1950. $2.50.

The widely experienced and respected director of the Public Administration Clearing House discusses clearly and concisely, in the chapters of this volume, reorganization problems and progress in the Federal Government, with particular emphasis on the relationship of reorganization to the urgent problem of making democracy work. The author analyzes many investigations of administrative procedure, from that of 1798 to the surveys of the Hoover Commission 150 years later.

The chapter headings aptly describe the book's focus: "Federal Reorganization: A Continuing Process," "The Continuing Pressures for Bureau Autonomy," "The President's Committee on Administrative Management," "The Commission on Organization of the Executive Branch of the Government," and "Unfinished Business."

The author makes clear the importance, if democratic institutions are to survive, of strong and responsible executive leadership which should be trusted and given power—subject always to the checks of freedom—the free legislature, the free courts and their guaranty of due process, the free press, the free rights of citizens to assemble and petition.

South Carolina Local Government

MUNICIPAL GOVERNMENT IN SOUTH CAROLINA—*By George R. Sherrill and Robert H. Stoudemire. University of South Carolina Press, Columbia, S. C.* 1950. 223 *pp.* $1.

The first four chapters of this study of South Carolina municipal government deal with the growth, legal status, structural organization and administrative practices of the 90 municipalities surveyed. There follow two chapters on finance which contain numerous tables on revenues, expenditures, and indebtedness for cities in different population categories. The last few chapters deal with the administration of public works, safety, social services; and the final chapter makes 21 recommendations for new legislation and practices.

Pittsburgh's Government

THE PITTSBURGH MANUAL—*By William G. Willis, University of Pittsburgh Press, Pittsburgh, Pa. October 1, 1950. 188 pp. Case bound, $2.50; paper bound, $1.50.*

An excellent study presenting an accurate and organized account of the structure of functions of the government of Pittsburgh. It should aid in creating a broader understanding among students and citizens alike of what it is that the city government does, and how it is organized to do it. The book is particularly timely and helpful as an aid in further appraising the developing civic unity in Pittsburgh and the growing acceptance of the necessity of community planning.

Toronto Finances

MUNICIPAL FINANCE—*A Report Prepared by the Toronto Civic Advisory Council. Published by the University of Toronto Press, Toronto 5, Ontario, Canada.* 1950. 185 *pp.* $3.50.

This report points up special financial difficulties of Toronto as a central city in a metropolitan area. Backed by 36 tables and charts, it recommends that municipal-provincial interrelationships should be re-examined in the light of shifting economic and social activities, so that both the province and the municipalities may assume their proper share of the financial burden. Part I presents the constitutional background of municipal government in Ontario with particular reference to the legal relations of Toronto with the Province. Part II is an examination of the financial activities of Toronto. Part III surveys civic interrelationships—as between Toronto and the 12 suburban municipalities, and between the municipalities and the province. Part IV examines certain specialized fields of the inquiry, such as education, taxation, housing, public works, and highways.

Milwaukee Taxes

SPECIAL TAXES AND LICENSES—CITY OF MILWAUKEE. *A mimeographed report compiled by the Comptroller's Office, Milwaukee.* 1950. 98 *pp.*

The Comptroller of Milwaukee ordered the compilation of material with a basic definition of each revenue source to meet a long-felt need, and the report on special taxes and licenses is part of the total work. The material is purely factual, containing no analyses of recommendations, and the text is liberally interspersed with tables and references. Special attention is given to features affecting the amount of revenue that can be received, such as statutory limits as to maximum license fees and factors limiting the number of persons, firms, etc., in a taxed or licensed activity.

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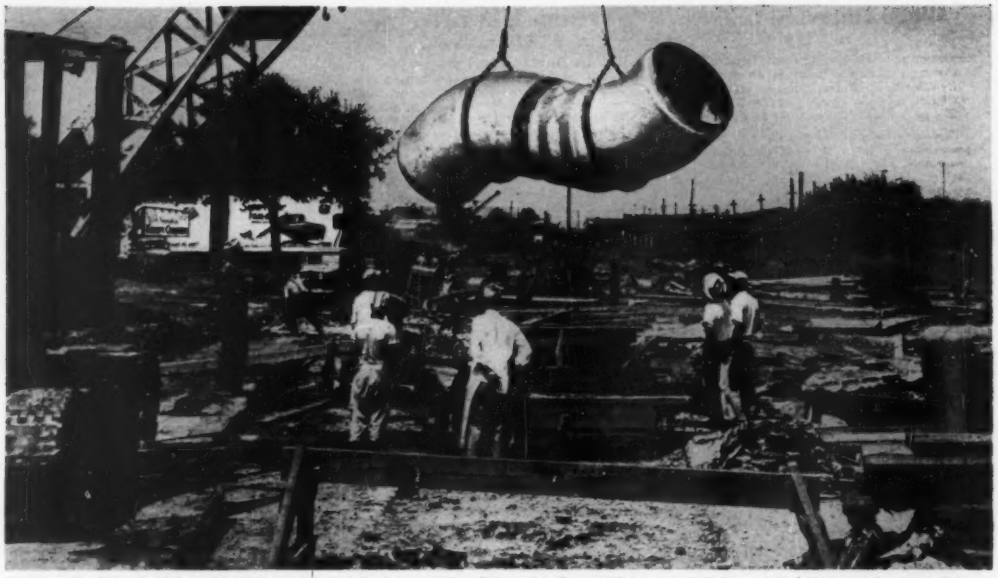

Bethlehem Tar-Enameled Water Pipe being installed in feeder main, New Orleans, La. General Contractor: R. P. Farnsworth & Company, Inc., New Orleans. Designing Engineer: Alexander Allison, Jr., Sewerage and Water Board of New Orleans.

New Steel Water Main in the Crescent City

The above picture was taken recently during construction of a new feeder main for the Sewerage and Water Board of New Orleans. This new water line is about 1.7 miles in length, and it extends from a purification plant in southwest New Orleans to the growing Gentilly area in the northeast section of the city. It consists of approximately 8760 ft of Bethlehem Tar-Enameled Steel Water Pipe in the following sizes and quantities:

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Essays on Politics

THE PEOPLE, POLITICS, AND THE POLITICIAN—*A. N. Christensen and E. M. Kirkpatrick. Henry Holt and Co., 257 Fourth Ave., New York 10, N. Y.* 1950. 1,042 *pp.* $6.

This is an excellent collection of 120 essays by many of the country's outstanding political thinkers, which provides a general introduction to the theories underlying the laws, institutions, and policies of the government. The range and diversity of the material constitute a remarkable cross-section of the democratic mind at work. Some of the important and controversial issues discussed here are: "American Ideals and the American Conscience," by Gunnar Myrdal; "Big Government Not Inevitable," by David E. Lilienthal; "How Free Is Our Press?" by William Allen White; "The Strength of Our Political System," by Allen Nevins; "The Political Party and the Local Political Club," by Alfred E. Smith; "The Pressure Boys in Action," by Stuart Chase, and many others.

Several of the essays are devoted to various problems of state and local government. Whether or not the reader agrees with the theories expressed in the essays, the papers are vigorous, and written to be read by anyone aware of the need to preserve the democratic way of life.

Israel Planning Journal

JOURNAL OF THE ISRAEL TOWN PLANNING ASSOCIATION, *Vol. 1, No. 1, Autumn* 1950. *Published at 25 Sea Rd., Mt. Carmel, Haifa, P.O.B. 2059. K. H. Baruth, Editor. 32 pp. Illus. $2.80 per year.*

The first issue of the *Journal* of the Israel Town Planning Association contains a number of thoughtful articles on the location of towns, Haifa planning problems, land taxation, and description of several housing schemes The Association itself is composed of experts and laymen alike. The vigorous editorial stands in the *Journal* make it evident that there is determination to make a success of town planning as an instrument of national policy. The magazine is published in both English and Hebrew.

Handbook for Discussion Leaders

THE DYNAMICS OF DISCUSSION—*By D. M. Hall, Assistant Professor of Agricultural Extension, University of Illinois. Published by The Interstate Printers and Publishers, 19-27 N. Jackson St., Danville, Ill.* 1950. 64 *pp.* 75 *cents, single copy. Two or more,* 50 *cents each.*

This handbook for discussion leaders is full of insight into the nature of and operation of democratic group discussion. The booklet is of the "how-to-do it" type. Dr. Hall has taken the lid off to show the inside working of a group, like the gears inside a watch. He identifies all of the individual roles in a group—there's the dominator, and the blocker, and the blamer, and others.

The booklet tells how to form a group, steps to follow in defining the problem, and most important, gives a step-by-step procedure to solve the problem. From a seed of an idea to full bloom of solution of the group problem, the booklet gives practical and sound information on all details of group operation, with sample forms for surveys, group selection blanks, "buzz session" cards, evaluation forms, etc.

Study of Bureaucracy

BUREAUCRACY IN A DEMOCRACY—*By Charles S. Hyneman. Harper and Brothers, 49 East 33rd St., New York 16, N. Y.* 1950. 586 *pp.* $6.

This book is about a problem which is very much on the minds of the American people, and looms larger every year: What is the place of bureaucracy in a democratic government? Is there any way of providing assurance that the 2,000,000 employees on the federal payroll will actually provide the kind of government we want?

A political scientist of wide experience in both college teaching and government service provides in this book a comprehensive, thoughtful and critical consideration of the basic questions. The book covers the relations of Congress to administration, the President, central service and control agencies, and direction and control within administrative establishments.

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Public Personnel Administration

PUBLIC PERSONNEL ADMINISTRATION—*William E. Mosher, J. Donald Kingsley, and O. Glenn Stahl. Harper and Brothers, 49 E. 33rd St., New York 16, N. Y. Third Edition.* 1950. 652 *pp.* $6.50.

Significant changes and developments in the whole field of public personnel administration in recent years have created an urgent need for a new and up-to-date treatment of the subject. Here is a thorough revision of the book that has long been the standard work on personnel practices in all branches of the public service—federal, state and local. The book has proved invaluable not only to practicing administrators but also to applicants for civil service posts.

This edition includes a greatly expanded treatment of the human factor in administration, employee organization, staff development and training, and contains an entirely new section on international personnel administration. Despite these necessary changes the authors point out in the new introduction, it is interesting to note that the important principles laid down in the earlier editions have stood the test of time.

State Government Reorganization

REORGANIZING STATE GOVERNMENT—*The Council of State Governments, 1313 E. 60th St., Chicago 37, Ill.* 1950. 153 *pp.* $2.

This is a report on administrative management in the states and a review of recent trends in reorganization. The carefully organized report points out that 23 states and 2 territories now have established agencies to study the overall organization and operation of their state governments.

Out of this trend has developed a record of notable achievements in modernizing the governor's office, in improving fiscal, personnel and other housekeeping services; and in ensuring authority commensurate with responsibility.

The material in this review has been classified by subject matter to permit ready reference. It should provide much relevant background data on reorganization required by the various commissions and other interested groups studying the administration of their state governments.

Planning and Housing Reports Received

DETROIT, MICH.—Population Prospectus for the Detroit Region, 1960-1970. By Paul M. Reid. Detroit Metropolitan Area, Regional Planning Commission. Mimeo. Charts. Tables. Graphs. Oct. 1950. 42 pp.

GOLDSBORO, N. C.—Planning for Goldsboro, Department of City Regional Planning, University of North Carolina, Chapel Hill. May 1950. Charts. Tables. Graphs. 44 pp. $2.

ILLINOIS—Illinois Redevelopment and Housing Handbook. Illinois State Housing Board. 160 North La Salle St., Chicago 1. 44 pp.

PANAMA—Cooperativismo vivienda colonias agricolas. Banco de Urbanizacion y Rehabilitacion. Panama. June 1950. Publication No. 19. Illus. 45 pp.

——La Vivienda Rural Panamena. Banco de Urbanizacion y Rehabilitacion. Panama. June 1950. Publication No. 18. Illus. Maps. 262 pp.

PATERSON, N. J.—Report on Land Use. Paterson Planning Board, City Hall, Paterson. Mimeo. Maps. 27 pp.

PITTSBURGH, PA.—Four-County Industrial Data. Pittsburgh District 1946-1949. Allegheny Conference on Community Development, 508 Magee Building, Pittsburgh 22. Nov. 1950. Mimeo. Tables. 20 pp.

PHILADELPHIA, PA.—Housing Today and Tomorrow. Philadelphia Housing Association, 1717 Sansom St., Philadelphia 3. Illus. 36 pp. 50 cents.

SEATTLE, WASH.—Civic Memorial Arts Center Site. City of Seattle Planning Commission, 503 County-City Bldg., Seattle 4. Mimeo. Maps. 13 pp.

UNITED STATES—City-County Cooperation in Planning. By Irving Hand, Planning Director, Tulsa County Planning Commission, Tulsa, Okla. Statement presented at the National Planning Conference, Los Angeles, Calif., Aug. 13-17, 1950. Mimeo. 12 pp.

——Directory of State Planning and Development Agencies with roster of principal staff members. Sept. 1950. Publ. No. 11. Third Edition. Association of State Planning and Development Agencies, 1313 East 60th St., Chicago, Ill. 50 pp.

——Moving People. Planning Aspects of Urban Traffic Problems. By Walter H. Blucher, American Society of Planning Officials, 1313 East Sixtieth St., Chicago, Ill. Mimeo. 13 pp.

——Planning Relationships in Housing and Redevelopment. By Walter H. Blucher. Oct. 1950. Address before the National Association of Housing Officials. Mimeo. 13 pp.

Other Reports Received

ALBUQUERQUE, N. M.—Solutions for Albuquerque's Traffic Problems. Albuquerque Highway Transportation Survey, D. Grant Mickle, Director, 700 Hill Building, Washington 5, D. C. Illus. Graphs. Tables. 96 pp.

AMHERST, MASS.—Intermunicipal Cooperation in Massachusetts. Bureau of Public Administration, University of Massachusetts, Amherst. Sept. 1950. Mimeo. 43 pp.

BAYTOWN, TEXAS—Annual Budget 1951. Mimeo. Tables. 77 pp.

BOULDER, COLO.—Municipal Report of the City of Boulder for 1948, 1949. Available from the Office of the City Manager.

BRITAIN—The Facts About Civil Defence. A Municipal Journal publication, 3-4 Clements Inn, London W. C. 2. Illus. 32 pp. One shilling.

——Water Pollution Research 1949. Department of Scientific and Industrial Research, Charles House, 5-11 Regent Street, London S. W. 1. Publ. by H. M. Stationery Office, York House, Kingsway, London, W. C. 2. 46 pp. One shilling sixpence.

DAYTON, OHIO—Your City in Review. A Three-Year Progress Report. 1947-1949. Illus. 48 pp.

HUNTINGTON PARK, CALIF.—Annual Report 1949-1950. Compiled by Wm. P. Mahood, City Clerk. Tables. Illus. 36 pp.

IOWA—The 1950 Census . . . Its Effects on Government in Iowa. Institute of Public Affairs, State University of Iowa, Iowa City. By Dean Zenor. Tables. Maps. 63 pp.

KANSAS—Kansas Election Manual. A Local Government Research Publication, No. 144. The League of Kansas Municipalities, publisher of Kansas Government Journal, Topeka, Kansas. 1950. 212 pp. $7.50.

LETCHWORTH VILLAGE, N. Y.—Annual Report of the Board of Visitors for fiscal year ended March 31, 1949. State of New York, Department of Mental Hygiene, Albany. Tables. 52 pp.

MEXICO, MO.—City of Mexico Council-Manager Government: Group Insurance Plan. Illus. 14 pp.

MINNESOTA—Municipal Practice in the Regulation of "Showmobiles". Municipal Reference Bureau, League of Minnesota Municipalities, University of Minnesota Library Bldg., Minneapolis 14. Mimeo. 4 pp.

NEW JERSEY—Talk About Taxes. The Educational Planning Commission of New Jersey, 211 Mountain Ave., Springfield, N. J. 34 pp.

NORTH DAKOTA—Directory of North Dakota Municipal Officials, 1950-51. Prepared by the League of North Dakota Municipalities, City Hall, Bismarck, N. D. July 1950. 32 pp. $1.

NEW HAMPSHIRE—Reorganization of New Hampshire State Government. Bureau of Government Research, University of New Hampshire, Durham. Vol. 3, No. 1. 32 pp.

OHIO—I am U & T. Cuyahoga County Welfare Department, 919 Huron Rd., Cleveland 15. Mimeo. 22 pp.

——Annual Report 1950. Ohio River Valley Water Sanitation Commission, 414 Walnut St., Cincinnati 2. Illus. 42 pp.

PASADENA, CALIF.—Annual Report 1949-1950. Pasadena Water Department. Oct. 1950. Illus. Graphs. 71 pp.

TACOMA, WASH.—Streets. A part of The Tacoma Master Plan. City Planning Commission, 205 City Hall Annex, Tacoma. June 1950. Illus. 41 pp. $1.

UNITED STATES—Bring Government Back Home. By Harley L. Lutz. National Association of Manufacturers, 14 West 49th St., New York 20. 292 pp.

——Bibliography of Publications in the Field of Streets and Highway Traffic. Compiled by the Transportation and Communication Department, Chamber of Commerce of the U. S., Washington, D. C. July 1950. Mimeo. 19 pp.

——Draft of a Model Water Pollution Control Law proposed for submission to the Council of State Governments at their October 1950 Meeting in Washington, D. C. Federal Security Agency, Public Health Service, Division of Water Pollution Control, Washington, D. C. Aug. 1950. Mimeo. 18 pp.

——Evolution of Federal Housing Activities in the United States. Housing and Home Finance Agency, Office of the Administrator, Washington, D. C. Sept. 1950. Mimeo. 11 pp.

——Tentative Standard Specifications for Sodium Fluoride. American Water Works Association, Inc., 500 Fifth Ave., New York 18. 5 pp. 15 cents.

——What to do in an Atomic Bomb Attack. By John Richard DiGiacomo, P. O. Box 892, Elsinore, Calif. 7 pp.

VERMONT—Financial Statistics of State, County and Local Government in Vermont. Fiscal Years 1932-1946 and 1947-1948 Supplement. Vermont Development Commission, Research and Planning Division, Montpelier, Vt. Tables. Graphs. Illus.

VIRGINIA—Hourly Wage Rates in Virginia Cities. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. Report No. 327. Dec. 1950. Mimeo. 50 cents.

——Sewer Charges, Levies and Special Assessments in Virginia Cities and Towns. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. Aug. 1950. Report No. 326. Mimeo. 18 pp. 75 cents.

——Water Quality Survey of Hampton Roads Shellfish Areas 1949-1950. Division of Engineering, Virginia State Department of Health in cooperation with U. S. Public Health Service. Aug. 1950. Mimeo. Tables. Graphs. 122 pp.

——Water Rates in Virginia Cities. League of Virginia Municipalities, 902 Travelers Building, Richmond 19. Report No. 328. Dec. 1950. $1.

WASHINGTON—Design Standards for Major and Secondary Streets. Bureau of Governmental Research and Services, University of Washington, Seattle. Jan. 1950. Mimeo. 14 pp.

——Traffic Ordinances for Washington Cities. Bureau of Governmental Research and Services, University of Washington, Seattle. June 1950. Report No. 107, 53 pp. $1.50.

——Washington State Statutes Relating to Traffic and Motor Vehicles. Bureau of Governmental Research and Services, University of Washington, Seattle. June 1950. Supplementing Report No. 107. Supplements 1 & 2. Mimeo. 70 pp.

WESTMOUNT, CANADA—Annual Report 1949. Illus. Tables. 46 pp.

WEST VIRGINIA—Bridge Warrants and Locations in the Kanawha Valley. Report No. 2. 1949. Prepared by the State Road Commission of West Virginia, Planning Division, Charleston. Mimeo. 37 pp.

——The Need for Constitutional Revision in West Virginia. By Albert L. Sturm. Bureau of Government Research, West Virginia University, Morgantown. 1950. 69 pp.

——Traffic Survey Report of Bluefield, W. Va. 1949. Prepared by the State Road Commission of West Virginia, Planning Division, Charleston. Mimeo. Graphs. 63 pp.

——Traffic Survey Report of Fairmont, W. Va. 1948. Prepared by the State Road Commission of West Virginia, Planning Division, Charleston. Illus. Tables. 52 pp.

——Traffic Survey Report of Montgomery, W. Va. 1949. Prepared by the State Road Commission of West Virginia, Planning Division, Charleston. Mimeo. Tables. Graphs. 20 pp.

WINNETKA, ILL.—1949—50 In Brief . . . So that those who run may read. Annual Report, Village of Winnetka. Illus. 12 pp.

——The Use of Television by the Public Library. The Library Public Relations Council, The American Library Association, 50 East Huron St., Chicago 11, Ill. 35 pp.

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Red Balls in the Air Allow No Nickel Jugglery

The "Red Balled" Easton Street of Wellston, Mo., which simplifies parking problems for motorists and police officers.

When you see red balls along a business street you know (1) you are looking at parking meters, (2) that there are a number of parking violations if cars are parked where the red balls show, and (3) that they are Martin Red Ball Parking Meters, Benton, Ill. This clear indication is a service to the motorist, who doesn't want a ticket, as well as to the officer responsible for maintaining legal parking.

The City of Wellston, Mo., population 7,400, a suburb of St. Louis, has 300 Red Ball Parking Meters which have been doing a parking-turnover business of $1,500 per month since January 1, 1950. With only five moving parts of heavy-gauge stainless steel, servicing has been held down and corrosion prevented. The lever action coin receiver, which cannot clog, has no springs to break, does not depend on springs or gravity, and offers no excure for not making a deposits. Lever action makes for better coin handling. Even distorted coins, chewing gum, paper clips, and hairpins do not "jam" these meters. The enclosed coin slot protects against rain, snow, and ice.

The "red ball" makes the violation readily spotted by the officer whether cruising or afoot.

LEO J. HAYES, *Mayor*
Wellston 14, Mo.

Ryerson Moves Into New Steel-Service Plant

Joseph T. Ryerson & Son, Inc., steel distributors, have moved into a new and larger steel-service plant and office building in Cincinnati, Ohio, at 3475 Spring Grove Ave. The concern, founded in 1842, has invested more than $1,000,000 in its new plant. Its president, Everett D. Graff, heads the nationwide group of 12 Ryerson steel-service plants throughout the country.

The total floor space of the new plant is 165,000 square feet or almost four acres. Its layout provides complete cutting facilities and heated sections for special types of steel.

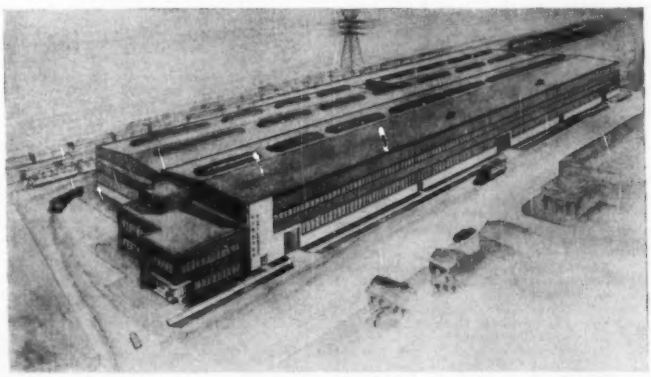
The warehouse unit is of structural steel frame construction with masonry and a special type of steel siding, well lighted with side windows, skylights, and the most modern electric illumination. The L-shaped two-story brick and steel office building, is completely air-conditioned and comprises 10,000 square feet of floor space. Besides housing company offices, it has shower, locker, and recreation rooms for plant and office employees.

Three 750-feet long spans run the complete length of the plant, which is served by the B & O Railroad. Orders are cleared to stockmen, loaders and drivers through pneumatic tubes and a telephone intercommunicating system.

Among the cuting facilities are a new 200-hp friction saw unit, a new electric-eye controlled travograph flame-cutting machine, auxiliary flame-cutting equipment, two sheet shears of 3/16 inches by ten-foot long capacity, high-speed, heavy-duty hack saws, an alligator shear, and bar benders.

All of one span of the warehouse and half of another span are heated in order to preserve and protect the finish of special types of bars and flat rolled steel while in stock. Among the products in the company's full line of steel are: hot-rolled and cold-finished carbon bars, structural shapes, and seamless and welded mechanical and boiler tubes.

E. R. Nelson is manager of the new Ryerson plant.



Architect's drawing of the new Cincinnati plant of Joseph T. Ryerson & Son, Inc., steel distributors, which replaces company's old plant, occupied since 1923.

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- **Elimination of alley garbage can.**
- **Elimination of garbage collection problems.**
- **Elimination of garbage odors.**
- **True sanitation for your town.**

The Hotpoint Disposall® food-waste disposer is easy to install in any sink . . convenient . safe . . . odorless and economical. Simple to operate . . . keeps kitchens, sinks, hands clean. Does not overload or clog sewer systems. Can also be used with septic tank.

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The Boyce Co., Inc., of 504 Pennsylvania Ave., Clearwater, Fla., announces the association of R. F. Garcia, who will be in charge of the contract promotional department on water and sewer systems and submerged pipeline construction.

R. F. Garcia

Mr. Garcia had been vice-president and general sales manager of the Century Foundry Co. and prior to that was a staff member of the J. B. McCrary Engineering Corp. of Atlanta, Ga.

Mast Arms and Hardware For Street Lighting

Essential as are luminaires and standards, there are many other equipment items that make up a street-lighting unit. Practically all these other materials are presented in Chapter 12 of the new No. 50 Catalog of Hubbard and Co., Pittsburgh 1, Pa. They include mast arms, brackets, pole plates, lamp hangers, a complete line of fittings. The modern-design brackets and mast arms of 1½ to 25 feet long include new style upsweep mast arms, extra light, and economical, and extra strong.

The Hubbard Catalog has 15 chapters. The others describe pole-line hardware, cable material, and distribution-line equipment such as insulators, secondary racks, cross-arm brackets, and lightning arresters, all active items of purchase by the 2,000 municipalities operating electric systems.

There are 4,000 items in the Hubbard line and all are made from dies manufactured under control of the company. Galvanizing also is performed in the company's plants. The importance of engineering which through selection of materials can reduce weight without sacrificing strength and of economical methods of manufacture further holding down costs and prices, is portrayed by President Joseph V. Smith in reviewing the 107 years' Hubbard history. He says:

"Even during the business life of this writer, we have seen the price of steel below $.01 per pound and above $.06 per pound; zinc as low as $.02½ per pound and as high as $.27 per pound; ingot copper from $.05 per pound to $.36 per pound; heavy steel scrap, which has such an important bearing on our steel markets, as low as $6 per ton and as high $43 per ton; common labor rates from approximately $.15 per hour to a present base rate of $1.18½ per hour, with the almost certainty of further increases in the near future. You are all familiar with the repeated increases in freight rates over the country. Even office boys, from $3 per week to a minimum of $.75 per hour, reflect changed economic conditions."

A NECESSITY FOR EVERY MUNICIPALITY

The NETCO CATCH BASIN CLEANER with pneumatic controls

Simple • Positive Powerful

PNEUMATIC BUCKETS

Two types of Netco Buckets are available with large capacity: (1) An orange peel type which operates through an opening as small as 16 inches. (2) a clamshell designed to operate through rectangular frames as small as 13½" x 19".

Check these features

- **The Netco Catch Basin Cleaner can be mounted on any short wheel base truck having at least 8 ft. in back of cab. You can purchase unit separately and mount on your own chassis.**
- **The Netco Unit can be removed from truck and chassis in 30 minutes.**
- **The Netco can be operated continuously because the material removed from catch basins is loaded into other trucks. This unit will average 20 to 30 catch basins per 8 hour day.**
- **The Netco Bucket closes pneumatically, assuring positive and maximum digging efficiency.**
- **Positive and simple control of pneumatic bucket, boom swing, hoist clutch and boom brake by compressed air.**
- **The Bucket is lowered and raised by one cable. Only one hose is required to close it, and it is opened by powerful spring action.**
- **The Netco has a hoisting capacity up to 1500 lbs.**

These Cities and Many Others Own One or More

Netco Catch Basin Cleaners

Boston, Mass.
New York City, N. Y.
Indianapolis, Ind.
New Brunswick, N. J.
Harrison, N. J.
East Cleveland, Ohio
Binghamton, N. Y.
Chicago, Ill.
Philadelphia, Pa.
Niles, Ohio

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

Operators Know . . . the

LULL Shoveloader is SAFER TO OPERATE

SAFER

from MOVING PARTS and FALLING ROCKS

WOULD YOU like to operate a loader which required you to sit directly between the working lift arms? Of course not! Neither would operators. They too know the danger of falling boulders and moving arms.

● **SIT IN SAFETY** in the LULL SHOVELOADER . . . designed for maximum operator safety.

LULL SHOVELOADERS are outstanding for municipal use. They work every day of the year loading broken concrete curbing, ripping pavement, digging and loading dirt, cleaning ditches and reservoirs, leveling land and landscaping, sweeping streets, patching asphalt, bulldozing, backfilling, removing snow and many other jobs. Lull Shoveloaders are safe too!

OPERATORS KNOW their position on a loader is important to their safety. On a LULL SHOVELOADER, they know they are well clear of moving arms and falling rocks. They know they have full freedom of movement without fear of the giant they operate.

OPERATORS ARE CONFIDENT in the SHOVELOADER'S safe, versatile operation. They like its safer lifting, loading, scraping, bulldozing, digging and transporting. Accidents cost man hours, law suits, and increase insurance rates. Get the facts about LULL SHOVELOADER'S safety today!

It's important that you MAIL THIS COUPON NOW for full details.

LULL Manufacturing Company
3612 East 44th Street, Minneapolis 6, Minn.
Please send illustrated literature on:
LULL SHOVELOADER AND ATTACHMENTS

Name..... Title.....

Company .....

Address .....

City..... State.....

LULL Manufacturing Company
3612 East 44th Street Minneapolis 6, Minn.

Designers and Builders of
The Largest Line of Allied Equipment
for Industrial Wheel Type Tractors

SHOVELOADERS ● UNIVERSAL LOADERS ● FLUID-DRIVEN SWEEPERS ● LULLDOZERS ● SHOULDER MAINTAINERS

No Refuse Handling Odor

Russell E. Arney, assistant superintendent of the new District of Columbia Refuse Transfer Station, examines some of the 3,400 activated carbon "smell collectors" or adsorbers which bar fumes and odors from the surrounding neighborhood.

No dirt or smells from the new Washington, D. C. Refuse Transfer Station can reach the Capitol or House and Senate Office Building, but a short distance away. In passing the necessary legislation, Congress insisted that no dust or odors be allowed to escape from this central transshipment point for some 300,000 cubic yards of refuse and garbage—that portion of the quantity collected annually which is delivered to this station.

All operations take place indoors, the municipal trucks driving up ramps and dumping their loads into waiting gondola cars and truck-trailers. The surrounding air is sucked up by huge fans and thence drawn through dust cyclones and banks of spun glass filters. If odorous, it is then put through "smell collectors," hundreds of porous canisters containing activated carbon, which soak up odors, much like a sponge soaks up water.

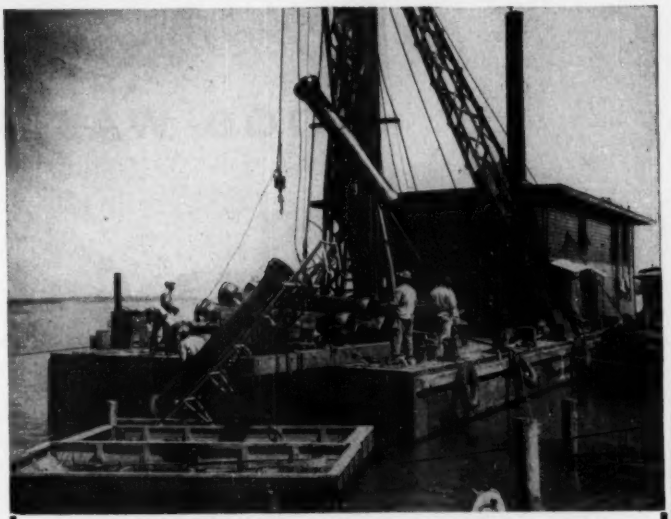
Acording to W. A. Xanten, Superintendent of the Division of Sanitation, the significant feature of the plant is that of the total cost of $918,700, the dust and odor control equipment cost but $37,400, or 4%.

The canisters were made by the W. B. Connor Engineering Corp., 114 E. 32nd St., New York 16, N. Y.

Firm Elects Two

Lorenzo Semple has been elected vice-president and treasurer, and John W. Brennan, secretary of the United States Pipe and Foundry Co., Burlington, N. J.

Donald Ross resigned as secretary-treasurer of the firm tto become first vice-president of the United Concrete Pipe Corp., Baldwin Park, Calif.



16" Water Pipe Line under John's Pass, Fla., being installed in 35 feet of water

BOYCE COMPANY

SUBMERGED PIPE LINES ALL OVER THE WORLD

Phone 3-2530 **CLEARWATER, FLA.**

ALABAMA PIPE COMPANY

General Sales Offices

ANNISTON, ALABAMA

TAKES pride in announcing the resumption of pressure pipe manufacture at its recently completed modern plant located at Anniston, Alabama. This plant produces Super deLavaud cast iron pipe, centrifugally, in modern long lengths.

Inquiries addressed to our nearest sales office will be appreciated.

122 So. Michigan Avenue
Chicago 3, Ill.

3122 Coleman Road
Kansas City 2, Mo.

350 Fifth Avenue
New York 1, N. Y.

BUILDER PREFERENCE IS GROWING . . .

PUBLIC DEMAND IS GREATER!

Youngstown Kitchens

FOOD WASTE DISPOSER

Typical illustration of what builders think of the Youngstown Kitchens Food Waste Disposer. Mace Properties sign declares that this new and progressive community has "No garbage! No alleys!"

Communities all over the country—large and small, old and new—are fast recognizing the values of automatic food waste elimination . . . and particularly of the Youngstown Disposer.

Now that builders and public alike are showing constantly increasing favor for banishing garbage forever, more and more people are learning this: *the Youngstown Disposer is 3 ways best!*

1. CONTINUOUS FEED—No "stop-and-go" action with the Youngstown Disposer. Food waste can be fed in continuously, with no load limits, no stopping between loads.

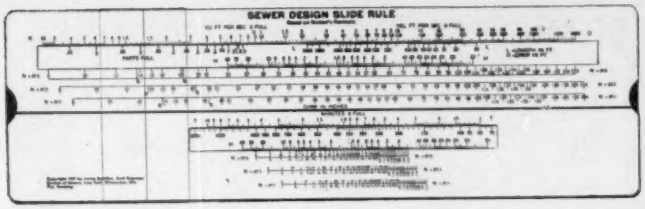
2. SELF-CLEANING—Automatic reversal of the rotary shredders changes direction of the water swirl for complete self-flushing. Waste is shredded thoroughly into tiny particles that act as a cleansing agent.

3. LONG LIFE—Self-reversing action doubles shredder life, because two sets of shredder edges do the work instead of just one set.

For these reasons—and many others—the Youngstown Disposer is marvelously service-free. From your own viewpoint, and the viewpoint of the public, consider these points of superiority.

MULLINS MANUFACTURING CORPORATION
WARREN, OHIO
World's Largest Makers of Steel Kitchens

TAKE THE LEAD IN YOUR COMMUNITY IN ABOLISHING THE GARBAGE NUISANCE!



Sewer Design Slide Rule

A slide rule for engineers designing sewers has been developed by Irving Goldfien, Chief Engineer, Bureau of Sewers, Milwaukee, Wis. The Sewer Design Slide Rule has a wide range and is simple to operate. It is 3¾ inches wide by 13 inches long and is based on the Chezy formula.

On the back of the rule are instructions for use through the solution of three typical sewer design problems worked out in detail, a standard engineer's slide rule, and a space for name, professional card or advertisement. The price of the rule is $3.00 and may be obtained from Mr. Goldfien, whose address is 3052 North 49th St., Milwaukee, Wis.

Street and Highway Signs

Street name signs manufactured by the Dominion Signal Co., have die-embossed letters, borders, and characters on durable metal.

Street and highway signs suited to municipal, county, state, and federal standards, are manufactured by the Dominion Signal Co., 12 N. 15th St., Richmond, Va.

Standard shapes, colors, and sizes are used for the signs which are in plain and reflecting styles and which are made with die-embosed letters and heavy-gauge metal symbols.

Changes at Detroit Diesel

V. C. Genn, general sales manager, has announced several changes in the sales department of the Detroit Diesel Engine Div., General Motors Corp., Detroit 28, Mich.

E. F. Bentley, former contractors' equipment sales manager, now is sales operations section manager. R. V. Baxley is sales manager of contractors' handle special assignments.

equipment sales. He had been Mr. Bentley's assistant.

L. H. Wells, who served as a field sales engineer, is assistant to Mr. Baxley.

Other changes in this section are: Paul Merkert, former field sales engineer in Indiana, Illinois, Missouri and Kansas, who takes over Mr. Wells' previous territory, covering Wisconsin, Minnesota, Iowa, the Dakotas and most of Nebraska; G. R. Holly, who now is sales engineer in Mr. Merkert's former territory, having his office in Detroit; W. T. Greene, who replaces Mr. Holly as sales correspondent, and A. E. Jones, who has been added to the staff.

Announcing

INDUSTRY'S MOST COMPREHENSIVE FAMILY OF

PROTECTIVE COATINGS

Hot Applied Coal Tar Coatings
Standard, Modified, Plasticized for pipe lines, Tank Bottom Coating, A.W.W.A., Clay Pipe Inst. Specifications.
Chlorinated Rubber Coatings—Series 300
Chlorinated Rubber and Chlorinated Rubber Alkyd type for use where fumes, condensation or spillage exist.
Cold Applied Coal Tar—Series 100
All-purpose coal tar base coatings available for a wide range of applications.
P C&C C
Vinyl Base Coatings—Series 400
For extreme maintenance conditions involving fumes, spillage or immersion in corrosives.
Alkyd Base Coatings—Series 200
General purpose maintenance finishes for use under normal exposure conditions.
Phenolic Base Coatings—Series 500
For use where resistance to solvents, organic acids and elevated temperatures is required.

Here's a great new arsenal of weapons for fighting corrosion—a comprehensive family of top-quality protective coatings to stop this multi-billion dollar waster in its tracks. The Pittsburgh Coke & Chemical Company, a leader in the production of coal tar pipe line enamels, now offers you a wide selection of tough, impervious coatings for effectively checking corrosion—from atmospheric exposure to attack by strong chemicals, high temperatures, and other destructive factors.

Laboratory-controlled from basic raw materials to finished products, Pitt Chem protective coatings are completely uniform and dependable. With the aid of these modern coatings and Pittsburgh Chemical field engineering service, your Corrosion Engineer may be able to save you thousands of dollars this year through an effective corrosion control program. • Write today for any information or assistance you need.

Protective Coatings Booklet

Now Available

Booklet containing specific information on Pitt Chem Protective Coatings and our facilities will be sent upon request.

See Your Nearest Pitt Chem Man

PROTECTIVE COATINGS DIVISION

WAD 2380

P C&C C

PITTSBURGH COKE & CHEMICAL CO.

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acids don't affect CLAY PIPE

Only *one* sewerage and drainage material is completely safe from chemical attack—particularly in industrial areas, where factories discharge heavy concentrations of acids and alkalies. Clay Pipe won't corrode, decompose, or disintegrate, because it's *all pure material*, chemically inert, and strengthened by vitrification. It provides *complete* protection against chemical activity — tomorrow, or fifty years from now. Be sure to specify Vitrified Clay Pipe . . . the *only* pipe that never wears out.

NATIONAL CLAY PIPE MANUFACTURERS, INC.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
206 Connally Bldg., Atlanta 3, Ga.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

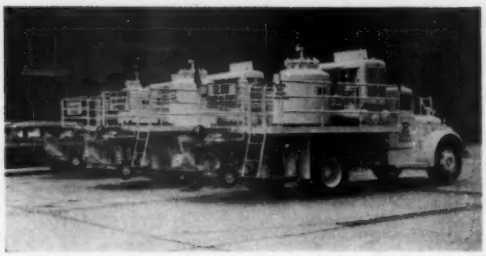
SPECIFY *Vitrified* **CLAY PIPE**

CLAY PIPE DATA

WRITE FOR DETAILED INFORMATION

Additional information and data on Vitrified Clay Pipe and Clay Building Products will be sent on request. State your specific questions. Simply contact the regional office nearest you.

CLAY PIPE NEVER WEARS OUT!



The capacity of these traffic stripers is approximately 300 gallons.

Super-De Luxe Traffic Stripers

Some of the most complete traffic stripers ever constructed were recently delivered to the State Road Commission of West Virginia. These stripers, built by the Kelly-Creswell Co., Xenia, Ohio, are mounted on Brockway trucks and use Chicago pneumatic air compressors. Their capacity is approximately 300 gallons. The zone-marking material is kept in suspension by air-motor agitators, and the speed of application ranges up to 9 mph. The operation is pneumatic and is controlled entirely by the operator at the rear.

Two Kelly-Creswell Air-Curtain assemblies were installed in a guidable trailer and both of the lines are designed for either solid or broken-line application. Provision is made to advance or retard the beginnings and endings of the broken lines so that accurate registration can be made with an old line. Atomized cleaner fluid, under pressure at all times, provides for the instantaneous cleaning of each gun, Air-Curtain, or fluid line, by the manipulation of a valve. An air cylinder raises the trailer to the transport position and an intercommunication system affords contact between the operator and the driver at all times. Lights, representing a spray gun, light up in the cab as a gun is opened, so the driver always knows what is happening in the rear.

The company also makes many other models of stripers. The Kelly-Creswell Model B-3 is particularly well adapted for municipal work. It is self-contained, mounted on a tubular frame with spray gun and Air-Curtain assembly mounted just inside the left rear wheel. The Model B-3-P is similar, but larger. The Model C is designed for safety lane applications in larger areas and industrial plants.

Graver Appoints Shuff In Atlanta

Graver Water Conditioning Co., 216 W. 14th St., New York 11 N. Y., manufacturers of equipment for water treating processes, reports the appointment of Evans L. Shuff and Associates as its representative for the Atlanta, Ga., territory.

The Shuff organization has headquarters at 303 Five Ivy Building, Atlanta 3, Ga., and is headed by Evans L. Shuff.

Sales Promotion

Announcement has been made by L. H. Lull, president of the Lull Mfg. Co., 3612 E. 44th St., Minneapolis 6, Minn., of the appointment of Chas. O. Ayers as sales promotion manager.

C. O. Ayers

Lull builds allied equipment for industrial wheel tractors and materials handling units. These include Shoveloaders, Tilting-Tower Universal Loaders, Fluid-Driven Sweepers, Shoulder-Maintainers, Lull-dozers, Traveloaders, and Fork-Lift Trucks.

The

SEWER SCOOTER*

*Trademark

Sewers Clean Themselves With a Sewer Scooter

100% self-propelled for 6" to 96" sewers —is equally effective for all conditions and problems of sewer maintenance — completely cleans sewers of all sediments: rocks, gravel, sand and "hard-to-move" sludge.

Quick and efficient in operation. Investigate today! Ask for Bulletin.

Dealers—Some good territory open

Fitzgerald Engineering Co., Inc.

P. O. Box 289-E, Coral Gables 34, Fla.

For State and Local Civil Defense Officials:

COMPLETE DESIGNS AND SURVEYS

for

ATOMIC BOMB SHELTERS

Information based largely on official data prepared by the United States Department of Defense and United States Atomic Energy Commission.

Areas Investigated and Charted

We assemble data on designs of shelters (dual purpose or otherwise), locations, cost, amount of protection, access and other related data.

Our staff will prepare and assemble all pertinent facts for your planning commission, furnish advice and guidance on all features relative to layout and plan details including nucleonic protective inventions* forming a complete unit for an atomic bomb shelter. This plan will facilitate your presentation of an application for Federal funds to be applied toward your local civil defense program.

ATOMIC SHELTER INSTITUTE

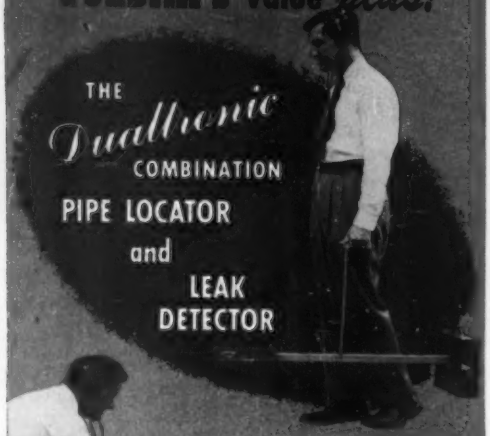
10 Park Avenue Est. 1946 **New York, N. Y.**

Phone: ORegon 9-3749

* *Patents Pending*

GOLDAK'S value plus!

THE *Dualtronic* COMBINATION PIPE LOCATOR and LEAK DETECTOR



Since first introduced, the "Dualtronic", has met with instant success with Municipalities and Utilities throughout the world, because of the time and labor savings effected by one instrument doing the work of two so efficiently and effectively. Ruggedly built! Lightweight! One man operation! The "Dualtronic", is the answer on how to cut costs 50%!

Proven Ability!

GOLDAK FEATHERWEIGHT MODEL 87 PIPE LOCATOR

Guesswork eliminated. Pin-point location of pipes, mains, gates, tees, etc. One man operation, total weight 11 lbs! Strong, positive location signal guaranteed by Licensed circuits and Microtuning, exclusive with Goldak. Lasts a lifetime, guaranteed performance. Write for FREE literature!

The GOLDAK Co.
PIPE LOCATORS

1544 W. Glenoaks Blvd.
Glendale 1, California

For *Economical* Maintenance

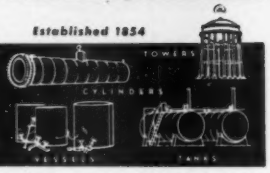
COLE ELEVATED TANKS

● Design plays an important part in tank maintenance. Experienced engineers design Cole tanks for easy access and minimum maintenance costs, as well as for permanence, safety, and dependability.

Send us your inquiries for tanks 5,000 to 2,000,000 gallons — stating capacity, height to bottom, and location. Write for latest Cole catalog—"Tank Talk."

R.D. COLE MANUFACTURING CO.
NEWNAN, GA.

Established 1854



Surfa-slick
Patent Applied for

SELF-HEATING ASPHALT SMOOTHING IRON

HOT IN TEN MINUTES
HOT ALL DAY

- Labor Saving
- Economical
- SAFE
- HOT
- COMPACT
- SIMPLE
- RUGGED

J. E. WOODS MFG. CO.
1516 First St. San Fernando, Calif.

"GUNITE" CONCRETE (Since 1915)

SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) ● CONCRETE AND MASONRY REPAIRS ● STEEL ENCASEMENT ● FIREPROOFING ● STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING ● SEWER LINING AND REPAIRING ● CANAL, DITCH, AND DRAIN LINING.

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Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.
See our catalog in Sweet's

Near East Airport Sets Construction Record

The modern Beirut Airport, built with U. S. equipment and supervised by U. S. engineers, and using job-trained native labor, was a pioneering project in that part of the world for "assembly line" construction methods and high-speed, precision equipment. The placing of 750,000 yards of 10-inch and 12-inch concrete paving for runways, taxiways, connecting strips and parking aprons was completed this past summer to finish the largest and best equipped air terminal in the Near, Far or Middle East.

Since this was the first concrete paving operation of such magnitude in this region, the problems were many. The primary objective was to select a paving set-up that would be relatively trouble-proof, and to mechanize all operations as much as possible. The two biggest problems were to select he proper equipment and to develop a skilled supervisory personnel and working organization from local talent.

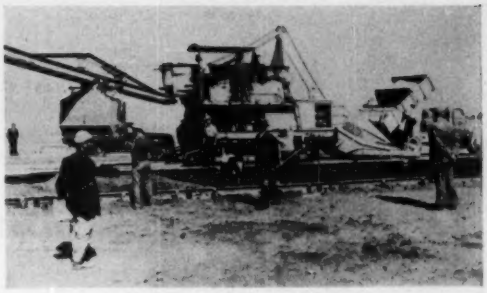
Equipment was purchased through an American exporting firm which was able to secure a completely balanced "package" of Blaw-Knox concrete construction equipment without delay.

The chief items consisted of two MultiFoote DuoMix 34E pavers, one Model SD 25-foot spreader with vibrator, one Model XE finishing machine, adjustable to 25-foot width, one 3-compartment aggregate bin with scales, and several thousand feet of 12-inch inch steel paving forms. Two Bay City cranes with Blaw-Knox clamshell buckets and a Blaw-Knox 14S mixer were also used. The Blaw-Knox "Complete Package" was chosen because of the advantage in operating a balanced fleet of units designed to work efficiently together to obtain assembly line production.

After the machinery problem was settled, the next task was to initiate a program of organization assembly and training of operators. In addition to six American engineers who assisted the airport technical advisor for three months, arrangements were made with the Lebanese authorities and the Blaw-Knox Company, 2009 Farmers Bank Bldg., Pittsburgh 22, Pa. for the employment of a competent Blaw-Knox service engineer for a period of one year. His duties were to train the men on the project in the proper adjustment, repair and maintenance of the equipment.

Concrete placing began in October, 1949. During the first few days the paver production was brought up gradually from a very poor beginning caused by the inexperience of the operators and improper adjustment and maintenance of the machines, to a daily pour of approximately 820 cubic yards per 7-hour day.

After a few changes in procedure, and after more intensified training of the workers by the service engineer, approximately 1,000 cubic yards per 8½-hour day were poured each day there was a straight run. The largest day's run totalled 1,005 concrete batches of 37.4 cubic feet.



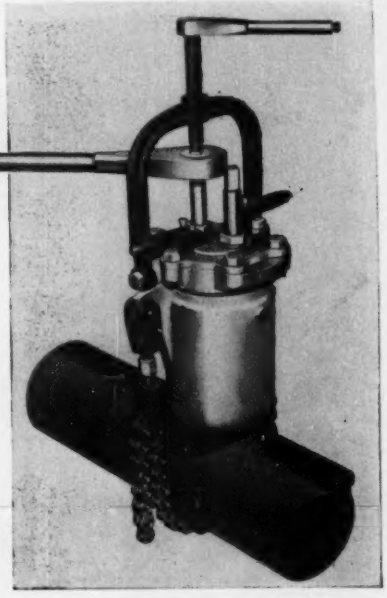
One of the two Multi-Foote Duo-Mix 34 E pavers used on the Beirut Airport in Lebanon which poured approximately 1,000 cubic yards for every straight run of 8½ hours.

DESIGNED FOR THE MAN IN THE DITCH

HAYS

MODEL B TAPPING MACHINE

FOR INSERTING ALL STANDARD MAKES OF CORPORATION STOPS



FASTER . . . Less time required to make a tap • Two ratchet wrenches speed up operations • Head turns freely at all pressures

EASIER HANDLING . . . Shorter height • More rigid attachment to the main • More room in the ditch • Fewer operations—less physical effort required

EFFICIENT . . . Machine fully loaded, ready for operation before placing on the main • No disassembling to insert corporation stop • Flat link chain—positive grip on main

ECONOMICAL . . . Longer life of tools—more taps per tool • Renewable bearings and working parts • Designed to use short pattern taps and screw plugs

If you need a new or better tapping machine, write or wire for our representative to make an on-the-job demonstration of the new HAYS MODEL B Tapping Machine.

COPPER BRASS LEAD IRON

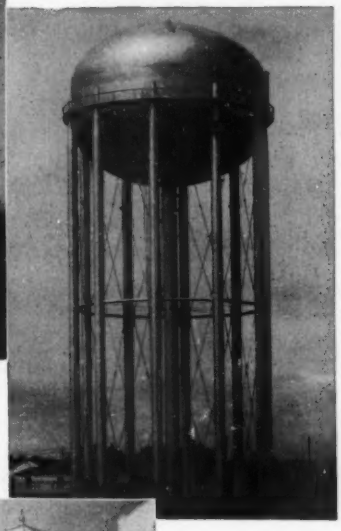
HAYS WATER WORKS PRODUCTS

HAYS MANUFACTURING CO., ERIE, PA.

EVERY TYPE AND SIZE—
FOR EVERY NEED!

Elevated Steel Tanks

by PITTSBURGH • DES MOINES



Write today for our complete Elevated Steel Tank Brochure

For all municipal water storage requirements, Pittsburgh-Des Moines Elevated Steel Tanks are supplied in a wide range of designs, and in capacities up to 2,500,000 gallons. • Uniform pressures around the clock, supply during interruptions in pumping, lower pumping costs are but a few of the many reasons for this low-cost investment.

May we discuss the facts with you?

PITTSBURGH · DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH (25)	3412 Neville Island	DES MOINES (8)	913 Tuttle Street
NEW YORK (7)	Room 915, 270 Broadway	DALLAS (1)	1217 Praetorian Bldg.
CHICAGO (3)	1216 First National Bank Bldg.	SEATTLE	920 Lane Street
	SANTA CLARA, CAL.	619 Alviso Road	

This tractor can load from the back.

. . . or it can pick up from the front.

New Wheel Tractor-Loader Can Dig at Either End

A new hydraulic tractor-loader is being sold by The Oliver Corp., 19300 Euclid Ave., Cleveland 17, Ohio. Its ability to dig at either the front or rear end of the tractor and to dump always in front, leaves the operator free to select the digging end to fit the job, so that he can do any type of loading without turning the tractor. For this reason, it is known as the 'Strait Line" Hydraulic Loader. According to the manufacturer, Main Steel, Inc., South Windham, Maine, it combines in one machine the features of an overhead and a conventional front-end loader. The Strait Line is for use exclusively on the Oliver Model "77" Industrial Wheel Tractors and is available only through Oliver Industrial dealers.

The combined weight of tractor and loader is 10,200 pounds. Bucket size is 9/16 yards with side boards to enlarge it to ⅝ yards. The combination can be driven from job to job at speeds up to 15 mph.

In-Place Lining Of Small-Diameter Pipe

A cement-mortar lining service for old, small-diameter pipelines, that gives new pipeline performance at a fraction of new pipeline costs, is reported by Pipe Linings, Inc., newly formed subsidiary of the American Pipe and Construction Co., P. O. Box 3428, Terminal Annex, Los Angeles 54, Calif. Licensed for nation-wide operations under Tate pipelining patents, the new company has complete facilities for servicing water lines of 4-inch diameter and larger, according to Robert C. Sargent, manager. The Centriline Corp, 140 Cedar St., New York 6, N. Y., has been licensed to handle service in the eastern part of the United States.

The process first cleans corroded matter and tubercles from inside pipe walls, and then applies a smooth cement-mortar lining to the walls. As a result, leaks are eliminated, flow coefficients restored, and pumping costs reduced. The advantages of concrete and steel pipe construction obtained include elimination of water discoloration, further cleaning for all time, and protection against bacteria.

Small diameter pipes have been lined for many years by Tate Pipe Linings, Inc., of Andover, Mass., which is in the process of dissolution. Pipe Linings, Inc., has acquired most of the equipment and key personnel for use by the new company.

Free descriptive booklet and complete information are available on request.

Wilshire Moves to Glendale

R. J. Lison, president of the Wilshire Power Sweeper Co., announces the removal of offices and plant from 4615 Alger St., Los Angeles 39, Calif., to 526C W. Chevy Chase Drive, Glendale 4, Calif.

The new plant, of 29,000 square feet, was necessitated by the increasing national demand for Wilshire power sweepers by municipilaities, parks, playgrounds, airports, and wherever sweepers are required.

The company manufactures an entire line of sweepers to fit indoor and outdoor requirements.

LOCATE HIDDEN VALVE BOXES, *surveyor's stakes, manhole covers, septic tanks...*

with the **"AQUA VALVE BOX LOCATOR"**

....quickly, easily, cheaply!

$29.50

F.O.B. CIN., O. with fine leather case

Thousands are used by Water Dept. and Gas Co. men and surveyors. Instant top-view periscope reading. Rubber-mounted cobalt steel dipping needle guaranteed for ten years. Accurate in ice and snow in all terrain. Also serves as a rugged accurate compass.

Time and trouble saved in finding just one valve box could pay for it. Send for complete illustrated description. Ask about 15 day FREE TRIAL.

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Since 1885

GRUENDLER

the choice again in

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Schenectady, New York
East Rockaway, L. I., New York
The Bronx, New York
Camp Roberts, Paso Robles, Calif.
Link Belt Co., San Francisco, Calif.
Concord, California
Milwaukee, Wisconsin
East Chicago, Indiana
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Tacoma, Washington
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One of Two Gruendler Screenings Grinders, Installed in East Chicago, Ind.

GRUENDLER
SEWAGE - GARBAGE SHREDDERS
Disintegrate the waste for continuous flow!

Bulletins S. G. 10 mailed on request

GRUENDLER
Crusher & Pulverizer Co.
Plant and Executive Office
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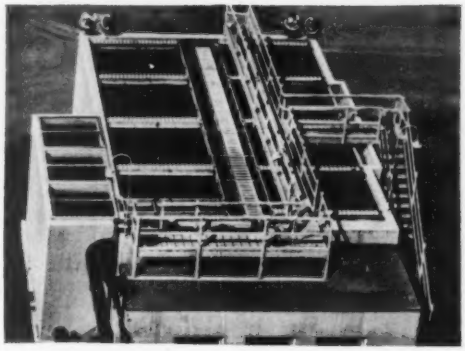
SLUDGE BLANKET
fresh and active at all times!



● **Operating on the principles of precipitation, adsorption, settling and upward filtration, the Permutit Precipitator lends itself to a variety of applications besides softening: removal of turbidity, color, taste, odor, alkalinity, silica, and fluorides.**

Write for full information to The Permutit Company, Dept. AC-1, 330 West 42nd Street, New York 18, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

Permutit®

Water Conditioning Headquarters for over 37 years

IMPORTANT OPERATING ADVANTAGES:

1. Saves you up to 50% in space
2. Saves you up to 40% in chemicals
3. Saves you up to 75% in time
4. Short detention time
5. Uniform sludge filter
6. No settling of precipitates
7. High adaptability to variable flow rates

J. G. Stewart

Miss D. E. Dimmers

John G. Stewart W.S.W.M.A. Manager

The Water and Sewage Works Manufacturers Association, Inc., at a recent meeting of the board of governors, appointed John G. Stewart of Allenhurst, N. J., as manager, succeeding the late Arthur T. Clark.

Miss Dorothy E. Dimmers, who served as acting secretary-manager since Mr. Clark's death, was named secretary of the corporation.

Mr. Stewart, a graduate of Princeton University, spent several years in the financial field and headed his own company in Wall Street. For the past four years he has been associated with the Hotels Statler Co., Inc., in the sales and sales-promotion departments.

The headquarters office of the W.S.W.M.A. is located at 170 Broadway, New York 7, N. Y.

Heads Conveyor Group

At the annual meeting of the Conveyor Equipment Manufacturers Association, in the Greenbrier Hotel, White Sulphur Springs, W. Va., W. E. Madden was elected chairman of the Portable Conveyor Group. Elected vice-chairman was B. W. Reeve, vice-president of the Lake Shore Engineering Co.

Mr. Madden, who will serve for a year, is vice-president of the George Haiss Mfg. Co., Inc., 141st St. and Park Ave., New York 51, N. Y., division of The Pettibone Mulliken Corp., 4700 W. Division St., Chicago 51, Ill., producers of portable and stationery conveyors, car unloaders, buckets and bucket loaders.

Fire Engine Motor Gets More Power and Speed

Increasing both power and speed in its Model F75T 750 gpm pumper and its F50T gpm pumper, The Four Wheel Drive Auto Co., Clintonville, Wis., has announced a change to the 150-GZB fire engine motor.

The new motor has ten more hp and 25 additional pounds feet of torque than the previous standard engine. It develops a maximum torque of 435-foot-pounds and 200 maximum brake horse power.

A dual ignition valve-in-head engine, the 140-GZB fire engine motor has a piston displacement of 554 cubic inches, a 4⅝-inch bore and 5½-inch stroke.

Rockwell Managers Named

W. F. Weimer has been named advertising manager, and A. C. Daugherty, market research manager, for the Rockwell Mfg. Co., Pittsburgh 8, Pa., it is announced by W. F. Rockwell, Jr., president.

Formerly advertising manager of the Pittsburgh Equitable Meter Div., Rockwell subsidiary, Mr. Weimer is secretary of the Industrial Marketing Council of Pittsburgh, and chairman of the Exhibits Commitee of the National Intrial Advertisers Association.

Mr. Daugherty, who has been a market analyst in the firm's market research department, is director of the Pittsburgh Chapter of the American Marketing Association.

W. F. Weimer

A. C. Daugherty

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on every curb, gutter and sidewalk job
BLAW-KNOX
STEEL CURB AND GUTTER FORMS
FOR simple straight work or curved shapes, Blaw-Knox Curb and Gutter Forms save money on every job. You save expensive lumber and carpentry labor, complete each job faster and get better finished work without costly hand finishing. You can use the same forms over and over for a wide variety of work.
WRITE FOR BULLETIN 2259—28 pages of form set-ups for every type of work, with complete instructions on how to use them.
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BLAW-KNOX DIVISION of Blaw-Knox Company
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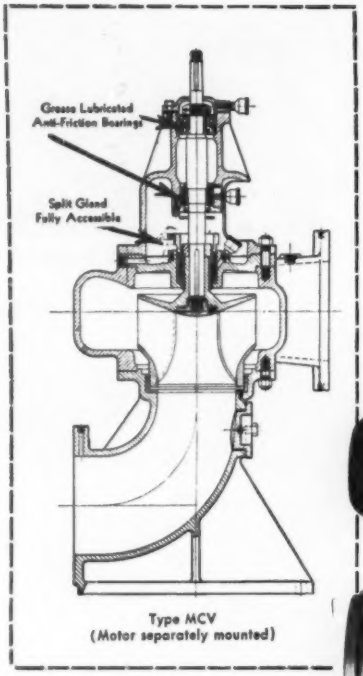
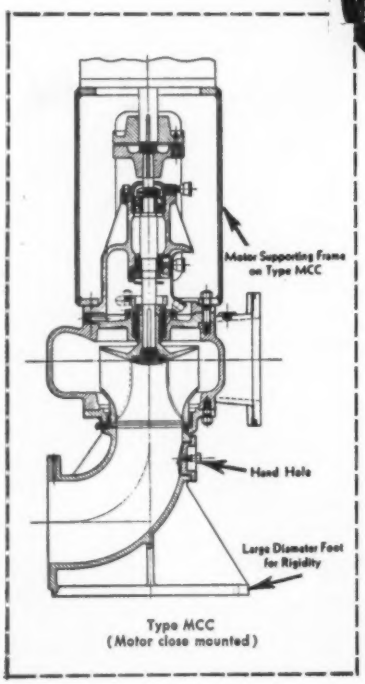


Type MCV
(Motor separately mounted)

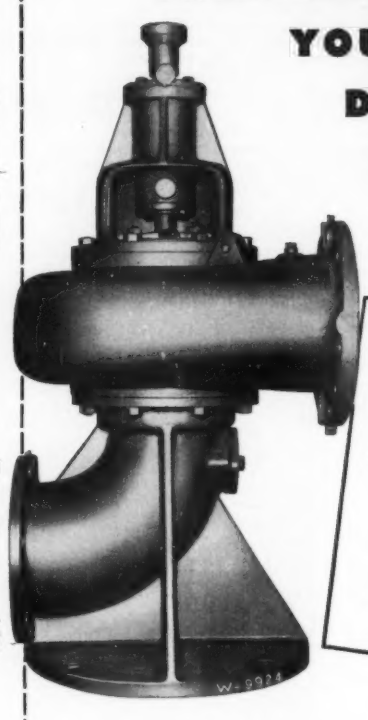
Mixflo, Type MCV
with base elbow suction nozzle



Type MCC
(Motor close mounted)

There's a Mixflo Pump

THAT WILL MEET YOUR SEWAGE DISPOSAL NEEDS— *Exactly!*



Worthington Offers The Largest Selection Of Sizes And Types In A Single Line

Non-clogging two-vane closed impellers, grease-lubricated anti-friction bearings, easy accessibility to the split stuffing-box gland and impeller eye . . . are typical of the many Worthington Mixflo features assuring low-cost, trouble-free sewage pumping.

No Need To Guess!

And along with performance-proved excellence in every mechanical and hydraulic detail, the Mixflo line offers you the widest choice of sizes and types in the field. So there's no need to compromise on a pump that's "about" right — you're sure to find a Mixflo that's *exactly right* for your particular requirements.

Bulletin W-317-B16 describes the various Mixflo types made in 10", 12" and 16" sizes. Worthington also builds Mixflos in sizes up to 84", with open or closed impellers and for horizontal or vertical drives. For more Mixflo facts that prove *there's more worth in Worthington*, contact our nearest District Office. Or write to *Worthington Pump and Machinery Corporation, Harrison, N. J.*

MEMBER

WORTHINGTON

W0.2

All-Purpose Snow Plowing

The snow is clear and the pavement is clean when this set of plows goes over the street. The prime mover is a Series F-5 Ford truck chassis with a St. Paul dump body. Manufactured by the Ford Division of Ford Motor Co., Dearborn, Mich., it carries a patrol scraper blade and Frink snow plow.

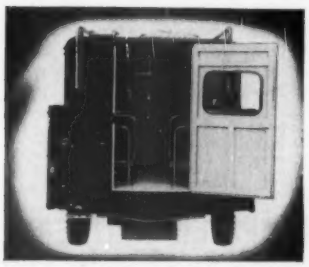
Microfilm Users Can Now Buy Recordak 16 MM Microfilmers

Present or prospective users of microfilming may now buy Recordak 16mm microfilmers and companion equipment, it is announced by Recordak Corp., 350 Madison Ave., New York 17, N. Y., subsidiary of Eastman Kodak Co., Rochester 4, N. Y.

Municipalities now renting Recordak microfilmers, readers, feeders, and endorsers can buy this equipment at a discount equal to half the rental charges up to three years prior to Aug. 1, 1950. This includes free service and parts for two years. Any new equipment purchased after that date will be serviced free for one year, including parts replacements. Sixteen millimeter equipment may still be rented, or purchased if the customer prefers.

Repair Crew Truck Body

A new transit-maintenance body has been added to the Powers-American line of public utility bodies and equipment. Arranged to permit comfortable transit for four men, in addition to those in the truck cab, this new unit also provides compartment space for carrying a wide variety of tools and materials. The body is particularly useful for surveying crews and maintenance gangs, and is ideal for transporting extra tools and men.



Plenty of room for maintenance crews.

Compartments may be equipped with shelves, trays, and bins to meet the requirements of any operation. The body roof may be fitted with handrails and hold-down straps, or can be equipped with ladder racks and material brackets. Inside seating arrangement can be altered to fit individual needs.

Full particulars and literature on this new body are available from Powers-American Division, McCabe-Powers Auto Body Co., 5900 No. Broadway, St. Louis 15, Mo.

—M-SCOPE—
PIPE LOCATOR

TYPE AB — 1950 MODEL

- Metal Cased Cabinets
- One Man Operation
- Unsurpassed Efficiency
- Fully Guaranteed
- Immediate Shipment

PRICED ONLY $149.50

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Our Twenty-Seventh Year

"Public Appraisal Service is a Public Trust"

DEMPSTER-DUMPSTER RUBBISH COLLECTION

What It Is-How Cities Use It To Cut Costs, Increase Cleanliness

Cities like Baltimore, Richmond, Nashville, Boston, Cincinnati, Birmingham — to name a few — are spotting big Dempster-Dumpster Containers at Schools, Hospitals, and Hotels . . . Apartment, Housing, Business and Market Areas for more efficient and sanitary collection of bulk rubbish. These containers are eliminating unsanitary trash cans, crates, boxes, rats, scattered trash, open trucks and with it making almost unbelievable savings.

Here is a brief explanation of this revolutionary method of bulk rubbish collection:

Operated by One Man

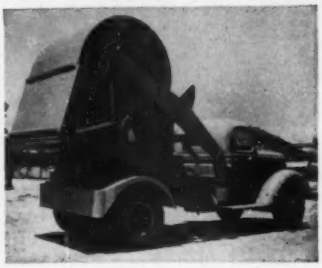
The Dempster-Dumpster System is, simply stated, one or more truck-mounted Dempster-Dumpsters, each with only one man, the driver, servicing any required number of detachable Dempster-Dumpster Containers, ranging in size up to 12 cu. yds. The Dempster-Dumpster makes scheduled calls at housing, market and business areas, hospitals, schools, etc., and picks up each pre-loaded container, hauls it to disposal area where contents are dumped automatically, then returns container to replace another pre-loaded container. This single truck - mounted Dempster - Dumpster services any number of containers, one after another.

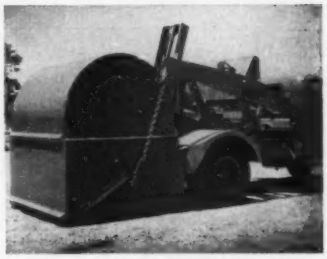
The cleanliness of the Dempster-Dumpster System is due to the completely closed steel containers. Trash and refuse cannot be scattered over streets and alleys by winds or scavengers. Dempster-Dumpster containers are fire-proof and rat-proof.

System Grows as Needed

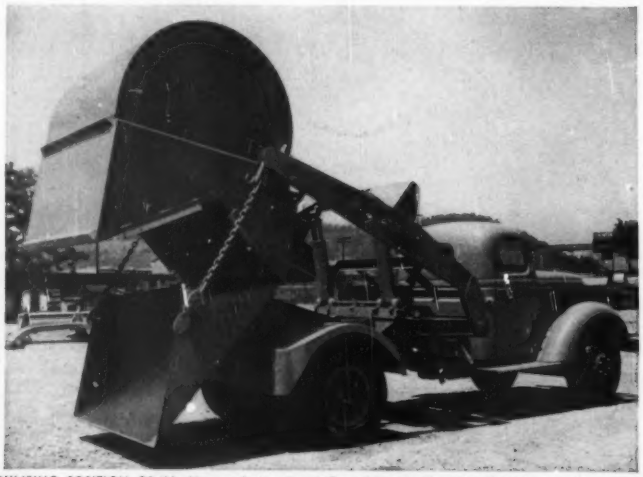
The City of Birmingham started out with one Dempster-Dumpster and 10 containers in 1938. Now Birmingham has 12 Dempster-Dumpsters servicing 204 containers. Richmond, Va., started out with two Dempster-Dumpsters and 13 containers in 1946. Today Richmond has six Dempster-Dumpsters servicing 196 containers. And so on down the line in city after city where the Dempster-Dumpster System is saving sanitation departments thousands of dollars annually. For example, when Richmond replaced the conventional open truck method of bulk rubbish collection in the business area with the Dempster-Dumpster System, it cut collection costs from $1.03 to .43 per cubic yard.

The pay-load capacity of the larger Dempster - Dumpster Containers is equal to or greater than conventional truck bodies. It is important to remember that containers are available in many different designs of every desired size. For instance, where moist or wet rubbish is a problem, a Dempster-Dumpster container is built to take care of it. And, bear in mind, regardless of the different designs or sizes of the containers you use at various points, one truck-mounted Dempster-Dumpster can service them all.





PICK UP AND HAULING OPERATIONS are shown in the two photos above. Driver backs Dempster-Dumpster up to Dempster-Dumpster Container, which has been pre-loaded by user, slips lifting chains onto lugs at each end of container, then, by hydraulic controls in the cab, lifts container into carrying position and drives to disposal area.



DUMPING POSITION Of this 10 cu. yd. Apartment Type Dempster-Dumpster Container is shown above. Its payload capacity is greater than the average conventional truck body. Container is placed in dumping position hydraulically and drop bottom section of container is lowered for dumping . . . all under complete control of driver in the cab.

The Dempster - Dumpster System triples man-hour efficiency . . . reduces truck investment, gas, oil, maintenance costs . . . improves "housekeeping" methods . . . reduces fire hazards . . . provides an easier, quicker, safer and more effective manner of handling bulk trash and refuse.

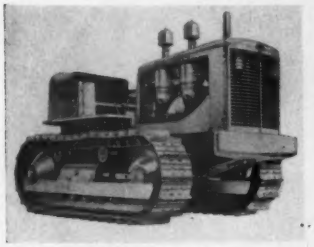
Upon request Dempster Brothers' engineers will be glad to prepare, at no cost to your city, a complete report for your particular municipal bulk rubbish collection requirements to determine the extent to which the Dempster - Dumpster System would justify its purchase and just what equipment would be required for efficient bulk rubbish disposal.

DEMPSTER DUMPSTER

TRADE MARK REG.

DEMPSTER BROTHERS
811 Dempster Bldg.
Knoxville 17, Tenn.

Allis-Chalmers Announces Two New Crawler Tractors



Six speeds forward and three reverse are features of this new crawler tractor.

Two new crawler tractors are being added to the Allis-Chalmers line this month, according to an announcement made by W. A. Roberts, executive vice-president and manager of the tractor division. With these two new models, HD-9 and HD-15, the firm now offers a completely modern tractor in each of the four major power classes.

The new units, scheduled for delivery to dealers early this year, are produced in the company's Springfield (Ill.) works.

Having six speeds forward and three reverse, both machines have unit assembly construction and use Positive Seals in the final drive, truck wheels, idlers, and support rollers.

Other features which add to the ease and efficiency of operation are: an adjustable seat, boosted steering; convenient grouping of controls; self-energizing brakes, and a tapered cowl for better visibility.

The HD-9 weighs 18,500 pounds and has a drawbar-hp rating of 70, while the larger HD-15, of 27,500 pounds' weight, develops 102 hp at the drawbar.

Separate catalogs describing each of the new tractors may be obtained from your Allis-Chalmers dealer, or by writing to Allis-Chalmers, Tractor Div., Milwaukee 1, Wis.

New Sewage Pump

Also announced by the company is the new line of pumps, Type SW, designed especially for sewage handling.

The line follows the design of the company's solids-handling pump, but has a special sewage type impeller with well-rounded inlet edges and large fillets to minimize clogging. On the larger-size pumps, a Francis type vane with rounded inlets is used for high efficiency. This vane is also employed for smaller pumps where maximum sphere size is of secondary importance, such as sewage sludge service.

The pump can be used horizontally or vertically with numerous suction and discharge nozzle arrangements. The entire rotating element can be removed readily without breaking pipe connections or moving the prime mover, should it be necessary to dismantle the rotor.

It Pays to buy your Street Lighting LUMINAIRES & STANDARDS from ONE SOURCE

Revere

ELECTRIC MFG. CO. CHICAGO, U.S.A.

THE GREATEST NAME IN LIGHTING

✓ YOU GET A BETTER JOB
✓ YOUR EQUIPMENT IS MATCHED
✓ THERE IS NO DIVIDED RESPONSIBILITY
✓ EASIER TO OBTAIN REPLACEMENTS

CALL ON US FOR A COMPLETE ENGINEERING JOB

Submit plot plan and traffic survey, also street classification.

SINGLE AND DOUBLE ARM ONE PIECE OCTAGONAL STANDARDS

Also Brackets for mounting decorative arms on existing wood poles.

Revere

HINGED STREET LIGHTING POLES

Do away with costly maintenance

LUMINARIES

for use with 2500 to 10,000 lumen incandescent lamps

You can also modernize Your Street Lighting with FINISHING RINGS *and* SYLVANIA S/B LAMPS

We Manufacture

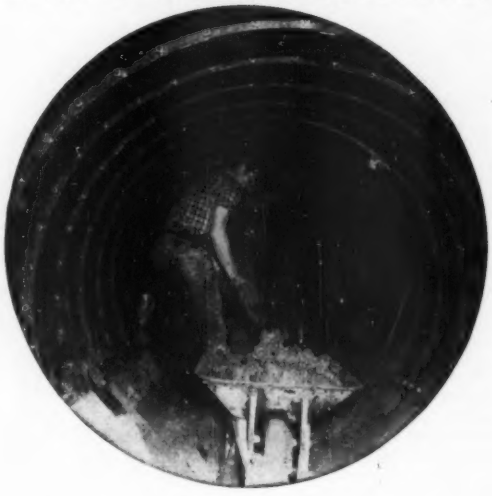
STREET LIGHTING EQUIPMENT • AIRPORT FLOODS AND EQUIPMENT
WHITEWAY PYLON-LITES • PLAYGROUND AND SPORTS LIGHTING

REVERE ELECTRIC MFG. CO.

6015 BROADWAY — *INDOOR and OUTDOOR Lighting EQUIPMENT FOR EVERY NEED* — CHICAGO 40, ILL.

WHY TIE UP TRAFFIC

to install new sewers



Remember when new sewer installations meant traffic snarls, safety hazards and general inconvenience? Fortunately, that can be a thing of the past.

Using Armco Tunnel Liner Plates, you can install underground structures simply, swiftly and economically, without disrupting business and traffic above ground. You won't have to destroy expensive pavements and curbing. And bad weather is never a problem. Work moves steadily and on schedule.

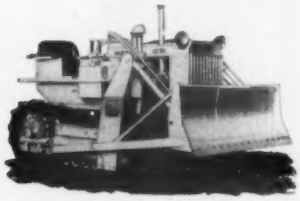
Armco Liner Plates are amply strong, yet light in weight and easy to handle. In fact, one man can easily carry, hold and bolt an Armco Liner Section into place. No special equipment is required. Excavation is kept to a minimum. Costs are low.

Let us tell you more about the greater safety, convenience and economy of using Armco Liner Plates on sewer installation jobs. Write for complete information. Armco Drainage & Metal Products, Inc., 1541 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.

Armco Tunnel Liner Plates

ARMCO

Crawler Tractor At Low Cost



The American Tractor Corp. of New York and Indiana, reports that Model GT-25 Terratrac Crawler tractors are coming off the assembly lines at its new plant in Churubusco, Ind.

Units are powered by a 4-cylinder, Continental Red Seal industrial gasoline engine, which provides over 20 drawbar hp and 25 belt hp. Pull-in first gear exceeds 3,000 pounds.

The GT-25 Terratracs feature Clark transmissions, Warner gears, Spicer universal joints, Auto-Lite ignition, Donaldson air cleaners, Fram filters and anti-friction bearings througout.

Other features include: positive crawler traction for all-weather operation, high clearance—over 20 inches, track gauges to meet varying requirements—from 36 inches to 72 inches wide, hydraulic system for operating a wide range of attachments, such as bulldozers, loaders, winches, earth drills, cranes, and snow plows.

Total weight is approximately 3,290 pounds. List price, less accessories and attachments, is $1,680 fob Churubusco, Ind.

New Type Pavement Breaker

A self-propelled "hydra hammer" has been announced by Edwin L. Johnson, sales manager of Ottawa Steel Products, Inc.

The hammer is said to eliminate several important labor and operational costs. First, an inexperienced man capable of driving a car or truck can learn to operate it efficiently in less than an hour's time. Secondly, the hammer needs no tow truck or driver. It gets to the job under its own power at road speeds up to 12 miles per hour. And thirdly, no time or motion is lost in making ready when it gets to the job. Simply elevate tower from travel position, shift gears, and go to work.

Because the 400-pound hammer is lifted by hydraulic energy but is free-falling, shock to operator or machine are eliminated.

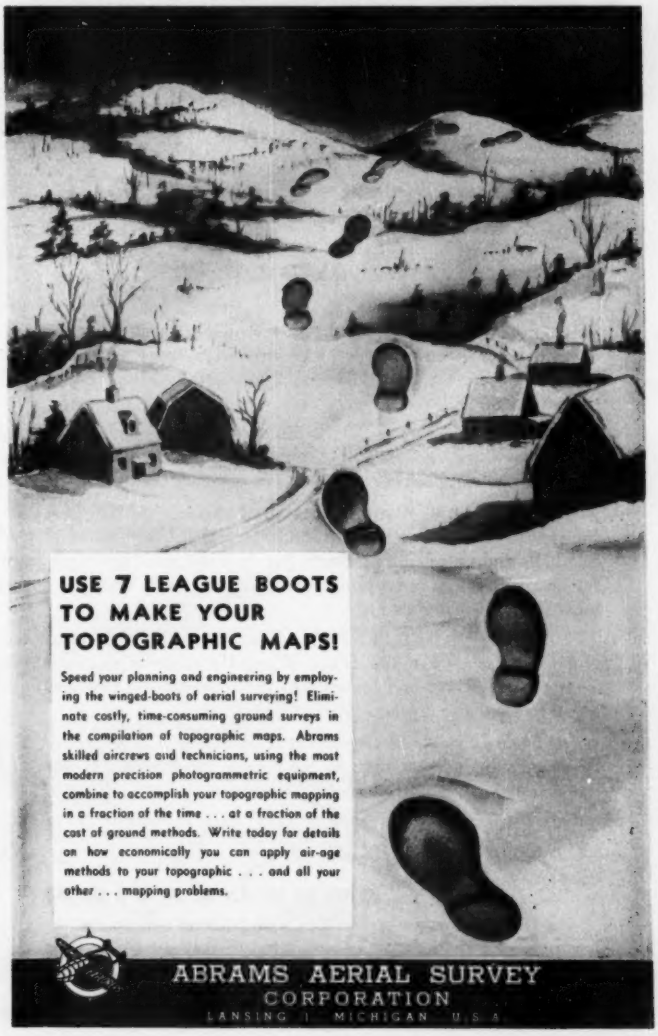
According to the manufacturer, four men with conventional backfill tamping equipment cannot do the job of the one-man operated SP hydra hammer. It tamps back all the original material taken from the excavation, eliminating soil removal, and insuring against after-settling. The sliding tower works a 4-foot wide trench or hole from side to side without maneuvering the wheels.

Price and further details may be obtained from Ottawa Steel Products, Inc., Industrial Div., Ottawa, Kans.

A. B. Dick Co. Appointments

Miss Frances Swadener has been named manager of customer instruction, and Kenneth B. Marble, manager of special promotions in the advertising and sales promotion department, it has been reported by the A. B. Dick Co., 5700 W. Touhy Ave., Chicago 31, Ill.

Both will continue to be located in the concern's new plant and general offices in Niles, Ill.


USE 7 LEAGUE BOOTS TO MAKE YOUR TOPOGRAPHIC MAPS!
Speed your planning and engineering by employing the winged-boots of aerial surveying! Eliminate costly, time-consuming ground surveys in the compilation of topographic maps. Abrams skilled aircrews and technicians, using the most modern precision photogrammetric equipment, combine to accomplish your topographic mapping in a fraction of the time . . . at a fraction of the cost of ground methods. Write today for details on how economically you can apply air-age methods to your topographic . . . and all your other . . . mapping problems.
ABRAMS AERIAL SURVEY
CORPORATION
LANSING 1 MICHIGAN U.S.A.

T-LOCK AMER-PLATE

THE NEW PROTECTIVE LINING FOR CONCRETE PIPE AND STRUCTURES

T-LOCK AMER-PLATE is a practical sheet lining that provides enduring and economical protection despite extremely corrosive conditions. It is the result of many years experience in the manufacture and application of AMERCOAT protective coatings for all types of industries.

This heavy-duty protective lining is especially adapted for use in sewage lines and structures exposed to severe corrosive action where permanent protection is of vital importance.

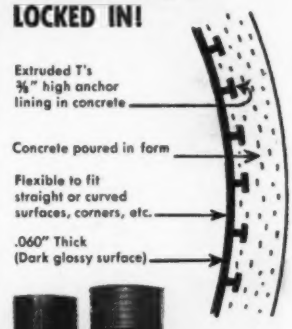
Composed of inert resins and plasticizers, AMER-PLATE is impervious to gases, highly resistant to most acids, alkalies, alcohol, oils, salts and petroleum products, has very low moisture vapor transfer and will not support combustion. Odorless and tasteless, it contains no toxic materials.

T-LOCK AMER-PLATE is applied to the inner forms of concrete pipe, structures and tanks. When the concrete is poured, the Tees are embedded and locked into the concrete and become an integral part of the finished product.

Over 10 years of development and testing have proved it to be practically indestructible in the service for which it is designed.

Amercoat CORPORATION
A Division of
American Pipe and Construction Co.
4809 Firestone Blvd., South Gate, Calif.

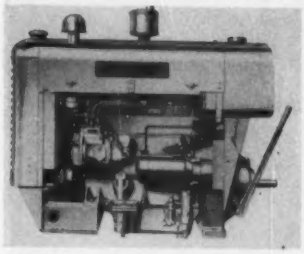
Here's how this tough, long-lasting, corrosion-resistant lining is LOCKED IN!


Extruded T's ⅜" high anchor lining in concrete
Concrete poured in form
Flexible to fit straight or curved surfaces, corners, etc.
.060" Thick (Dark glossy surface)

Placing pipe reinforcing cage over T-Lock sheet set up around inner-form.

Example of T-Lock sheet formed around complex structural members.

Gas-Diesel Power Units



Typical of the new power units is Waukesha Model 180-DACU—15-hp to 22-hp four-cylinder diesel, interchangeable with the four-cylinder gas or gasoline model 180-GLU.

The Waukesha Motor Co. of Waukesha, Wis., introduces a series of portable power units built around three basic sizes, a four cylinder and two cylinder engines.

These three sizes are made as diesels, gasoline, butane or natural gas engines, and carry approximately the same output ratings, size for size, whether diesel, or carbureted fuels are employed.

The Model 180-DACU has a 129-cubic inch four-cylinder diesel engine with a continuous output rating of 22 hp at 1,800 rpm. The Model 185-DACU has a 194-cubic inch six-cylinder diesel engine with a continuous output rating of 33 hp at 1,800 rpm.

The Model 190-DLCU, 265-cubic inch six-cylinder diesel engine with a continuous output rating of 45 hp at 1,800 rpm.

The three natural gas, butane, and gasoline power units, which are counter parts of the diesel power units, and which have interchangeable mountings, may be supplied with either gas, gasoline, or combination gas-gasoline carburetors, and since they are high compression overhead-valve engines there is no other change than carburetor and timing adjustment needed when switching from gas to gasoline operation.

All power units of this series are available either with or without fuel tanks; with or without clutch and power take-off; with or without skids and slide rails. In other respects, all units will be built to a standard specification.

Gar Wood Appointments Are Announced

Two appointments have been announced by Gar Wood Industries, Inc., Wayne, Mich. Robert E. Owen is district manager in the Southwest region of this country, and Dwight L. Mink, district manager in the Midwest region.

Both men will be responsible for the sale and service of hydraulic hoists, dump bodies, winches, cranes, and loadpackers.

HAISS Material Handling
BUCKET LOADERS

FOUR MODELS
Load 3 to 8 Yards per min.
Self-Propelled
Self-Feeding

For loading: sand, gravel, stone, top-soil, coal, snow and similar materials. One-man operation, wheel or crawler mounted. Furnished with swivel chute or with swivel belt conveyor.

Special new features include: Sealed anti-friction bearings on head and tail shafts, two or four wheel drive, hydraulic raising and lowering, manganese or roller chain.

HAISS CONVEYORS
CAR UNLOADERS

Flat and Trough Belt Conveyors
For handling all types of loose or package materials. Mounted on "V" or mast truck with swivel wheels or for permanent installation.

UNDERCAR UNLOADERS
Designed and built especially for loading sand, gravel, and crushed stone. Combination belt and postive chain drive. Capacity up to 5 tons per minute. Ask for bulletin No. 501.

SECTIONAL CONVEYORS
Channel or Lattice Frame construction. Made in easily assembled standard sections for permanent or portable installation. All sizes and capacities available for handling all types of aggregates as well as bagged or packaged materials.

For further information write, 'phone or wire. Experienced Haiss Representatives are located in all principal cities.

George Haiss Mfg. Co., Inc. division of Pettibone Mulliken Corp.
141st to 144th St. on Park Ave., New York 51, N. Y. 'Phone Mott Haven 5-2200
4700 W. Division St., Chicago 51, Ill. 'Phone Spaulding 2-9300

NEW YORK CHICAGO CEDAR RAPIDS

50 Million tons of paper *CAN* be wrong

Unwieldy . . . inconvenient . . . liable to the multiple dangers of misplacement, loss, destruction by fire, flood and insects . . .

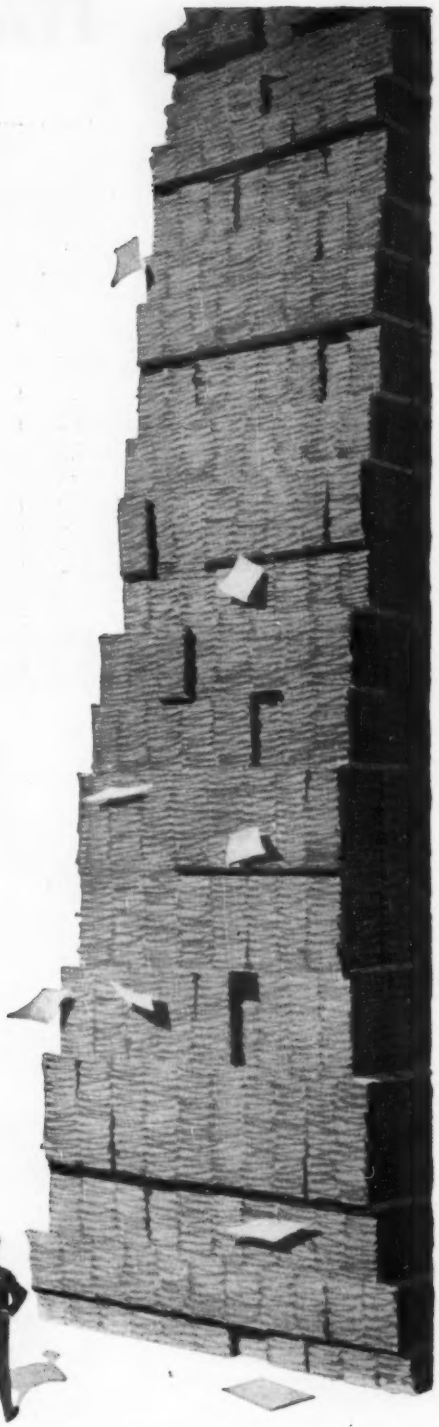
That's the story of tons and tons of vital records which every municipality must keep on hand.

What's *wrong* about it? Simply that all this vast accumulation of paper can be reduced to 1/100 of its bulk for simple, convenient *protection* of vital business records. Burroughs microfilming *safeguards and secures* the information on neat rolls of microfilm . . . easy to move, easy to store, easy to use for reference or reproduction.

Find out from Burroughs the time-saving, space-saving, money-saving benefits of Burroughs microfilming, applied to day-to-day transactions and year-in, year-out record storage. Burroughs Adding Machine Company, Detroit 32, Michigan.

WHEREVER THERE'S BUSINESS THERE'S

Burroughs



Don't risk it... Microfilm it!

Modern microfilm equipment built by Bell & Howell and sold by Burroughs is the finest obtainable. It reflects Bell & Howell's acknowledged leadership in the field of precision instruments for fine photography.

This new heavy-duty positive-pull combination chain and undercar unloader and trough belt conveyor speed the handling of sand and stone from cars to trucks. The combination is made by George Haiss Mfg. Co., Inc., 381 Canal St., St., Bronx 51, N. Y.

Complete Radio System For N. Y. Fire Department

New York City's Fire Department has signed a contract with Motorola, Inc., 4545 Augusta Blvd., Chicago 51, Ill., to completely modernize its radio system. More than 500 vehicles, fireboats and station houses will be re-equipped with new F.M. two-way radio units at a total cost of over half a million dollars.

Built in four separate systems, the network is being installed to furnish radio-telephone communications facilities to mobile fire-department units and fire boats operating throughout the five boroughs of the City and Port of New York.

One system will cover the entire City of New York, the second system will be used by the Boroughs of Manhattan and the Bronx, and the third will cover Brooklyn and Queens, while the fourth will be installed for the Borough of Richmond.

Reflecto-Liner Handles All Marking Materials

A new traffic line striper, the Reflecto-Liner, designed specifically for reflective coatings, but which will handle all modern marking materials, has been introduced by Wald Industries of Montgomery, Pa.

Designed to maintain a 100% reserve air supply during operations without hardening the motor or compressor, the striper features a "Nu-Matic" air gun which has ample displacement for reflective material, minimizes replacement parts and a gun holder for lateral and vertical adjustment.

The Reflecto-Liner's tank is of 12 gallon capacity, and it operates at 2 to 5 miles per hour by a 6 hp (AKN, Wisconsin) Hi-Speed, air-cooled gasoline engine.

Wald Industries also manufactures the Carry-Liner Trailer to transport larger type portable traffic striping machines. Constructed of structural steel, and fitted with a locking tongue bar, the trailer is 48 inches wide by 112 inches long with a wheel tread of 38 inches.

The trailer may be hitched to truck for easy transport to working location.

Write Wald Industries for details on these products.

New General Manager

M. B. Preeman is the new vice-president and general manager of the Road Machinery Division of the Standard Steel Corp., Los Angeles, Calif.

The company fabricates asphalt plants, both batch and continuous, subgraders, aggregate batching plants, and bulk cement plants for the road construction industry.

Radio Sales Manager

Arnold Rosenberg, general sales manager of the Bendix Radio Communications Division of the Bendix Aviation Corp., Baltimore 4, Md., announces the appointment of Robert B. Barnhill as manager of mobile radio sales, with headquarters at Baltimore, Md.

Mr. Barnhill has been transferred from the corporation's Chicago offices, where he was district sales manager.

Mr. Barnhill will supervise the sale or communications radio equipment that is especially useful for mobile fleets such as municipal police cars and other equipment.

Manufacturers Representative:

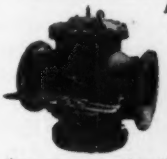
Sewer Cleaning Machinery Valuable Territory Openings

Please state lines you now handle, territory covered and your method of operating.

Address inquiry to

Box No. 341
The American City Magazine
1719 Daily News Bldg.
Chicago 6, Ill.

ROSS AUTOMATIC VALVES



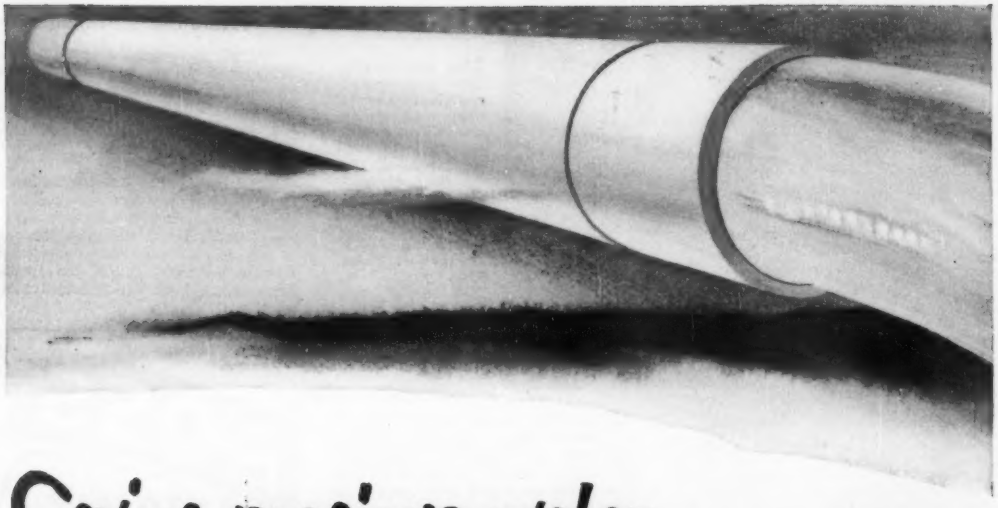
Altitude Valves
For control of elevation and heads into and out of tanks, basins and reservoirs, hydraulic control.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.
4. Can be equipped with electric and manual controls.

Combination Valve
This valve will permit flow in one or both directions automatically.
1. Pressure Reducing and Relief Valve.
2. Pressure Reducing and Altitude Valve.
3. Relief and Altitude Valve.

Remote Control Valve
Electric remote control — solenoid or motor can be furnished. Adapted for use as primary or secondary control on any of the hydraulically controlled valves.

Also— Pressure-Reducing Valves, Relief and Surge Valves Back-Pressure Valves, Etc.

Established 1879
ROSS VALVE MFG. CO.
Incorporated
P.O. BOX 596, TROY, N.Y.



Saving precious water for a thirsty

Municipal consumption of water in the United States has risen from two billion to over twelve billion gallons per day in the last fifty years.

In many areas, this rapid increase is posing a serious problem. It means that water supplies must be conserved to the limit if they are to continue to meet an ever-growing demand.

It is not surprising, therefore, that more and more water-works officials are seeking ways to cut down on water losses as one practical step toward the solution of this problem.

Since recent studies indicate that many localities are losing as much as 10% of water pumped because of underground leakage, an important question to be answered in any water conservation program is this: "How can I plan to reduce this major cause of water loss to a minimum?"

Community after community has found the answer in Transite Pressure Pipe.

The unusual success of Transite Pipe in combatting underground water losses is due to a combination of two factors: (1) the design of the Simplex Coupling used for assembly, and (2) the ability of the pipe to maintain its strength in service.

Because flexibility is engineered into the Simplex Coupling, this factory-made joint is virtually unaffected by pipe line stresses that so often result in the loosening and failure of conventional type joints. No particular skill is required for its proper assembly, which is readily checked in the trench by means of a simple gauge immediately after the pipe ends are joined.

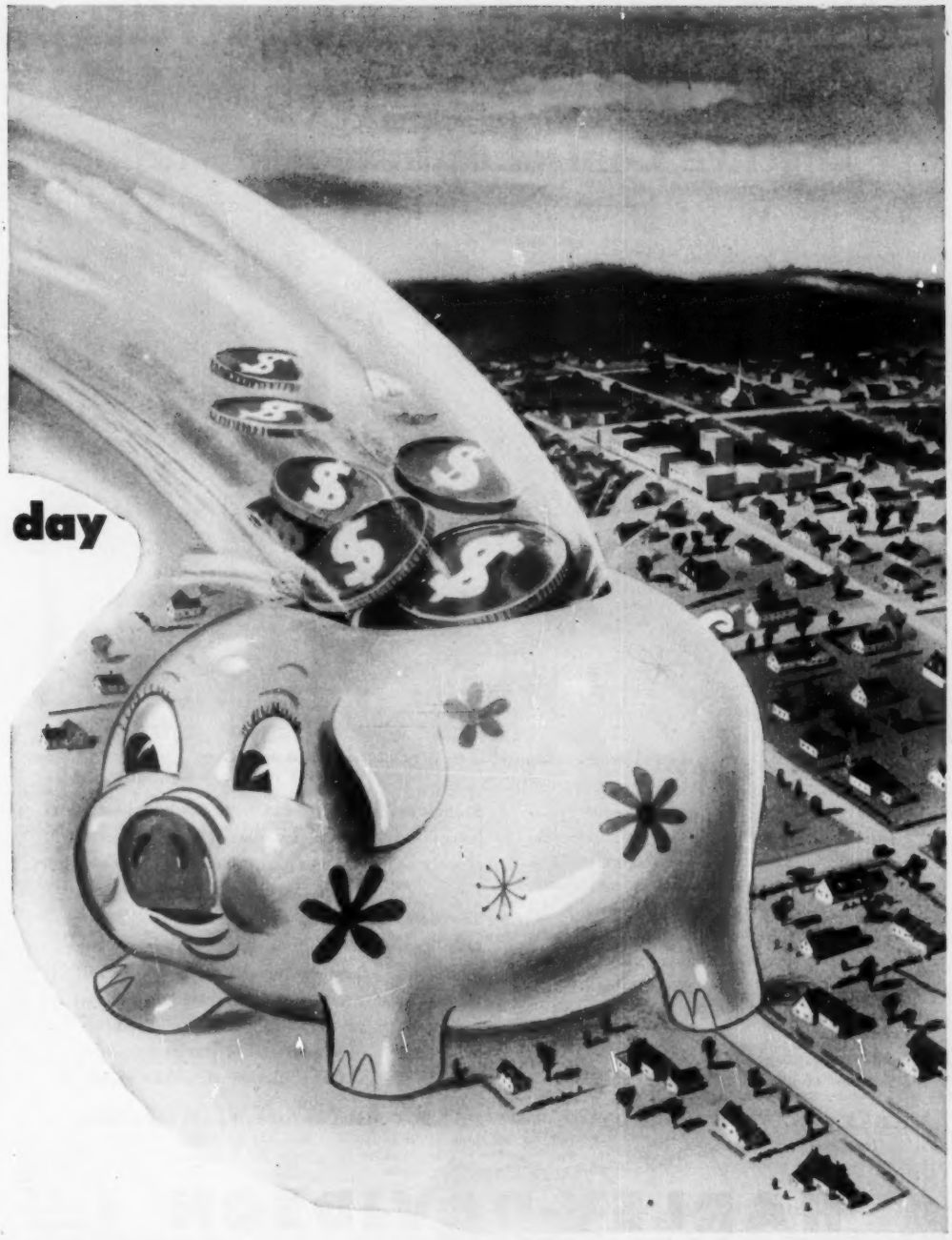
Moreover, Transite's maintained strength provides a further safeguard against costly underground water losses. In thousands of installations representing a wide variety of municipal soils, this asbestos-cement pipe has proved its exceptional ability to resist corrosion . . . to maintain its strength under conditions which have seriously impaired the structural integrity of other pipe materials.

Reducing the amount of "water pumped but not paid for" on your books—a saving in dollars as well as water—is only one of many important economies which Transite Pipe can offer you. Savings on installation, savings on pumping costs, savings on maintenance . . . these are further sound reasons why you will want all the facts about this modern asbestos-cement pipe developed and produced by Johns-Manville to carry water more efficiently.

For complete information write Johns-Manville, Box 290, New York 16, N.Y.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville



TRANSITE PRESSURE PIPE

Transite is a registered Johns-Manville trade mark

DALLAS, TEXAS, USES 64 MOTORCYCLES
All Harley-Davidsons
for Effective Control of Increased Traffic

These are part of the 64 Harley-Davidsons used by the efficient Dallas Police Department.

LIKE so many cities all over the country — whether large or small — the motorcycle division of the Dallas Police Department is equipped with Harley-Davidsons exclusively. Effective traffic regulation is assured through the use of 35 solo Harley-Davidsons and 29 Servi-Cars. Traffic experts recognize that no other method matches motorcycles for efficiently handling so many phases of traffic control work and accident prevention.

With traffic problems at an all-time peak — the menace of mounting injuries and deaths demands greater effort in dealing with accidents *before they happen.* Increase the effectiveness of *your squad* by equipping them with Harley-Davidson Police Motorcycles and Servi-Cars. Through their outstanding dependability, economy and efficiency, they have established remarkable performance records in traffic control and accident prevention. Call in your Harley-Davidson dealer today and get complete information about the superiority of Harley-Davidson Motorcycles in many phases of police work.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

Engineers View Pump Tests

The first of ten vertical shaft centrifugal pumping units for the Bryant Street Pumping Station, Washington, D. C., was tested at the Harrison (N. J) Works of Worthington Pump and Machinery Corp. The pumps, which will replace existing equipment considered obsolete, will distribute into the water works system for the low, first, second, and third high service.

Three of the pumps in low service are rated at 35 mgd, three in the first high service at 35 mgd, two in second high service at 25 mgd, and two in third high service at 15 mgd.

Each pump will be driven by E. M. synchronous motor, close-coupled to the pump and mounted on a cradle supported from the pump casing. The motor sizes range from 325 to 1,100 hp.

Officials and engineers witnessing the testing of the first unit included: D. V. Auld, Superintendent of the Water Dept., District of Columbia; Paul Lanham, Senior Engineering Operations and Maintenance; W. T. Van Doren; C. Sizemore and G. B. Watson, engineers of the Bryant Street Pumping Station, and Thomas Niles of Greeley and Hansen, Consulting Engineers.

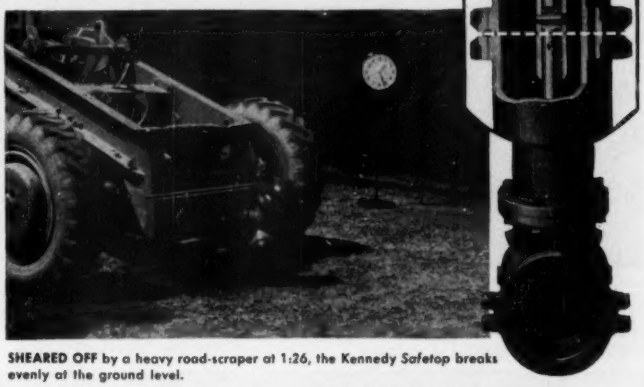
Repair Railways In Thailand

T. C. Frederick, chief engineer, and H. P. Watson, chief mechanical engineer, for De Leuw, Cather & Co., 150 N. Wacker Drive, Chicago 6, Ill., are directing the study of plans for rehabilitation of the Royal State Railway of Thailand. That nation's government has negotiated a loan from the World Bank to purchase the equipment.

Facilities of the state-owned railroad were badly damaged during the Japanese occupation of the country. Rolling stock, repair shops, and trackwork need complete overhaul and modernization.

From Break to Service *in 11 minutes...*

THE KENNEDY SAFETOP is the only hydrant with the threaded breaking ring that gives positive connection and rigid alignment of the two standpipe sections. Extensive tests and actual service reports show that the Kennedy *Safetop* can stand as tough a blow as the conventional hydrant without damage. But under a smashing impact, it always breaks cleanly at the breaking ring, without damage to working parts.



SHEARED OFF by a heavy road-scraper at 1:26, the Kennedy *Safetop* breaks evenly at the ground level.

Photos taken at N. Y. State Section meeting, A.W.W.A., April 1949.

WITH ONLY an inexpensive *Safetop* Repair Kit and a few common tools, one man can permanently repair the Kennedy *Safetop*.

NO NEED FOR DIGGING because breakage is all above ground . . . no flooding because compression-type valve closes with water pressure.

IN JUST 11 MINUTES the Kennedy *Safetop* is back in service . . . working as smoothly and efficiently as if nothing had happened.

THE COMPLETE KENNEDY LINE includes a wide range of A.W.W.A. valves and fire hydrants. When you standardize your community on KENNEDY, you are assured of the same high quality and dependability that have characterized all products of KENNEDY for 74 years.

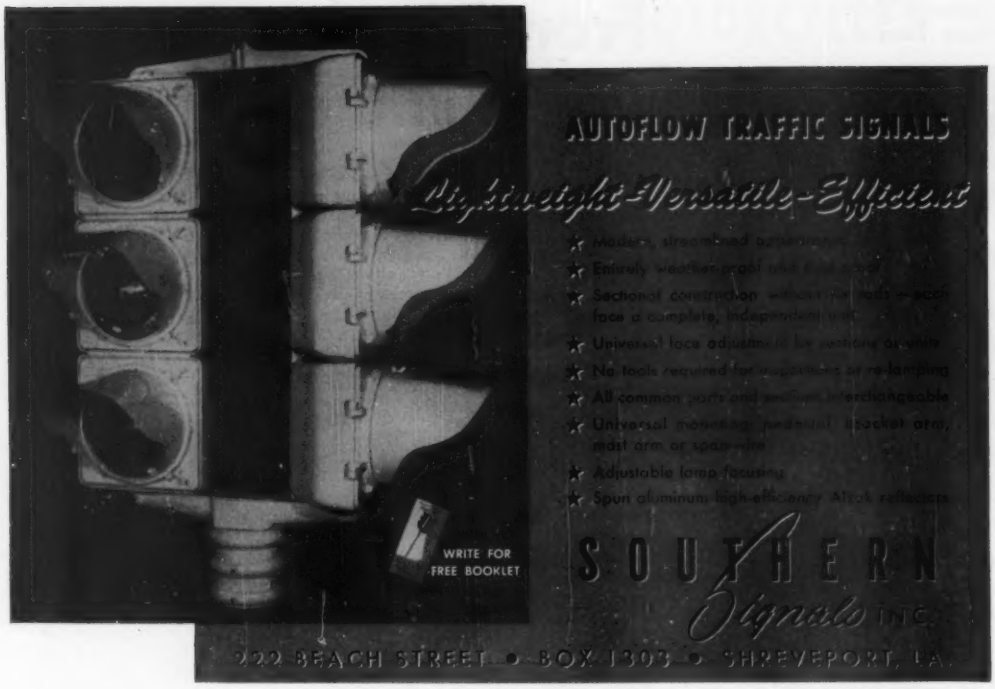
WRITE FOR SAFETOP BULLETIN 105

THE **KENNEDY**

VALVE MFG. CO. • ELMIRA, N.Y.

Est. 1877

VALVES • PIPE FITTINGS • FIRE HYDRANTS


AUTOFLOW TRAFFIC SIGNALS
Lightweight-Versatile-Efficient
WRITE FOR FREE BOOKLET
SOUTHERN Signals INC.
222 BEACH STREET • BOX 1303 • SHREVEPORT, LA.

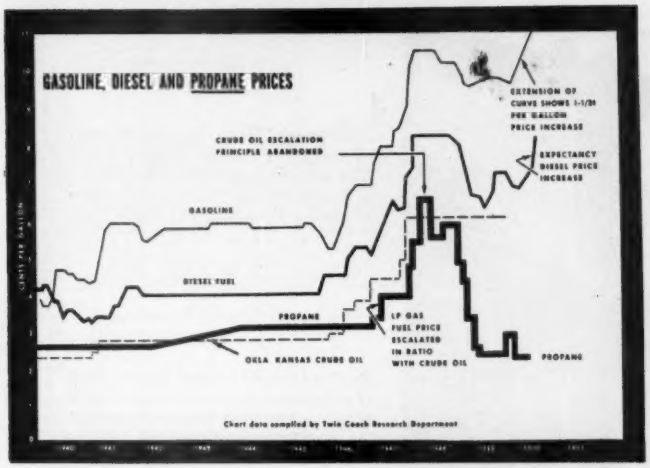
Does Your City Have These
ELECTION PROBLEMS?

Inaccurate, Delayed Election Returns
Spoiled Ballots
Slow Laborious Voting
Expensive Recounts
Election Frauds

If So— Let Us Show You How More Than 5,000 Cities and Towns Have Solved These Problems Through the Installation of AUTOMATIC VOTING MACHINES

WRITE

AUTOMATIC VOTING MACHINE CORPORATION
JAMESTOWN, NEW YORK
— SINCE 1898 —


GASOLINE, DIESEL AND PROPANE PRICES
EXTENSION OF CURVE SHOWS 1-1/2¢ PER GALLON PRICE INCREASE
CRUDE OIL ESCALATION PRINCIPLE ABANDONED
EXPECTANCY DIESEL PRICE INCREASE
GASOLINE
DIESEL FUEL
PROPANE
LP GAS FUEL PRICE ESCALATED IN RATIO WITH CRUDE OIL
OKLA KANSAS CRUDE OIL
PROPANE
Chart data compiled by Twin Coach Research Department

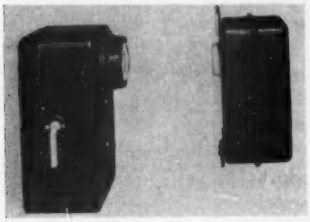
Propane Less Costly Than Gasoline

Proof that as gasoline and diesel prices have gone up, the cost of propane has come down is offered by the above chart prepared by the Twin Coach Co., Kent, Ohio.

The chart, based on statistics furnished by major oil companies, clearly indicates that the cost of propane has steadily remained far lower than either gasoline or diesel fuel. It also shows that today, with gasoline and diesel prices approaching new highs, propane is selling at lower prices than in 1940.

According to L. J. Fageol, president, Twin Coach has recently received orders for more than 750 new propane-powered coaches and over 200 propane conversion units.

Photoelectric Smoke Detector



A new photoelectric smoke detector, Type A28E, for air conditioning duct systems, has been announced by Photoswitch, Inc., 77 Broadway, Cambridge 42, Mass. It is recommended for use wherever the presence of smoke is a hazard to property or a possible cause of panic—municipal auditoriums, hotels, shops and theaters.

Duct systems have the inherent danger of spreading smoke and fire quickly throughout a building and in many instances have actually drawn a fire from the outside of a building through the air intake systems.

At the first sign of smoke, the control operates, and through auxiliary relays (not included) may automatically turn off blowers, close automatic shutters, and signal the maintenance department.

Photoswitch Type A28E is supplied with light source Type 130R; these are designed for mounting on opposite sides of the duct. Photoswitch Bulletin PE 505 describes this new photoelectric control in detail, and will be sent on request.

Pressurized Fire Extinguisher Has Trigger-Quick Action

The Alfco Pressurized Fire-Gun hits the target instantly and accurately, reports the manufacture of this new product, the American-LaFrance-Foamite Corp. This extinguisher operates quickly, is easily controlled, and needs no hand pumping. Made for class B and C fires in motors, autos, aircraft, trucks, electrical equipment, and other risks involving small oil and grease fires, the one-quart machine discharges vaporizing liquid and is compressed-air expelled.

More complete details may be obtained by writing American-LaFrance-Foamite Corp., Elmira, N. Y.

Catch-Basin Buckets

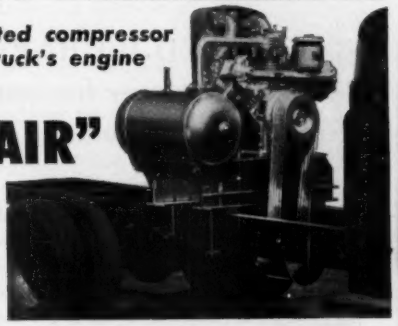
The N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J., manufactures Orange Peel buckets which require no opening springs or air cylinders and valves for operation. Available in 15-inch and 18-inch diameter with 1½-cubic foot and 1¾-cubic-foot capacities, these buckets are ecoconomical, can be used for heavy duty, and require simple operation.

Construction features include: four-blade high-carbon cast-steel one-piece castings with heavy reinforcing ribs, inside and out; alloy steel pins set in replaceable hardened bushings; oversize bull wheel, which assures full spread opening, and ample weight to dig into the hardest muck .

Now, a truck-mounted compressor powered by your truck's engine

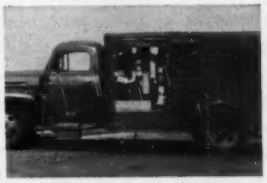
Jaeger

"TRAVEL-AIR"



For big savings in first cost, half the maintenance cost, and remarkable operating advantages.

Furnishes 125 cfm at 100 pounds pressure.



Travel-Air Compressor units are easily adapted to your own truck body designs. For five makes of 1½ and 2-ton rated trucks.

The famous heavy-duty Jaeger Compressor, arranged to mount on your service truck and get its power from the truck engine! A simple, rugged power-takeoff does the trick. Savings are immediate and continuing. No compressor engine, clutch, battery, trailer unit, tires, etc. to buy or maintain. No compressor engine cooling system to guard. No warming up after crews reach the job — and, crews, compressor, tools and materials get there at the same time. You utilize an engine that usually stands idle 7 out of 8 hours. There are more advantages — write for Bulletin TC-1, or see your Jaeger distributor.

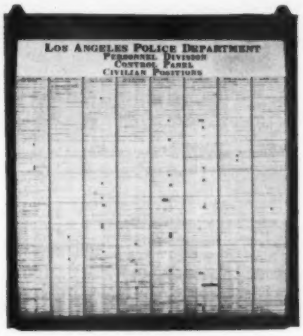
Other Jaeger Compressors — Portable and Stationary — 36 to 600 cfm.

THE JAEGER MACHINE COMPANY

505 Dublin Ave., Columbus 16, Ohio • Distributors in 130 Cities

Knowledge of job assignments is available immediately to Deputy Chief Richard Simon as he examines Sched-U-Graph panel for civilian personnel of the Los Angeles Police Dept.

On these Sched-U-Graph boards speed of reference is gained by the visible signals, which show at a glance whether the specifications of each job and the employee's abilities match. The system also helps when a vacancy arises, to find employees who can be transferred to advantage.



Los Angeles Police Department Gets Its Man!

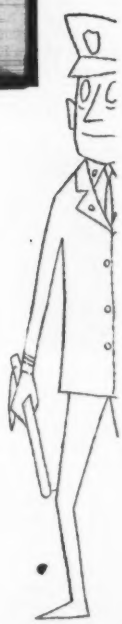
Finds SCHED-U-GRAPH the perfect answer for control of civilian personnel

With 1300 different civil service jobs for its civilian employees, the Los Angeles Police Department has no easy task to make sure that the *right* man or woman is in each job – that job qualifications and job-holder fit.

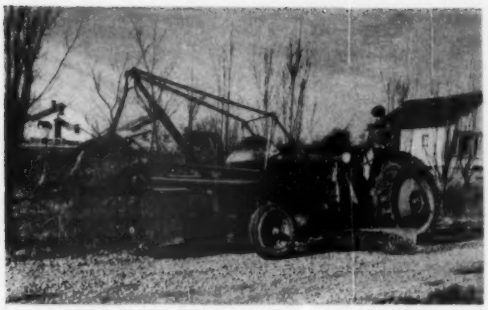
For the last two years, however, they have had what they feel is the perfect system for personnel control, in Remington Rand Sched-U-Graph boards. Prior to the adoption of these boards, the Department had searched in vain, and tried many methods, to gain the speedy and accurate reference they needed.

The control that Personnel Director Richard Simon wanted was one which shows all the pertinent facts *visibly* and *simply*, so that they could be interpreted at a glance. To quote Mr. M. E. Garey, Chief Clerk, who set up the system, "Our shopping tour ended when Sched-U-Graph was found. It met the specifications of Deputy Chief Simon, and is doing the streamlined job he needed."

Sched-U-Graph, or Kardex – also a visible system – might easily save time and simplify operations in *your* personnel control. Both are highly flexible, can be readily adapted to anyone's individual needs. For full information, write today to Management Controls Division, Room 1611, 315 Fourth Ave., New York 10, N. Y.



Remington Rand INC.



This Huber maintainer is equipped with a grader blade and a lift-loader

Escalator Carries 8,000 an Hour

In response to an increasing demand for a large-capacity escalator in municipal and public buildings, the Otis Elevator Co., 260 11th Ave., New York, N. Y., recently announced the addition of a new 48-inch wide escalator to its present line.

David Merker, escalator sales manager of the firm, reports that the "Free-Flow" model can carry 8,000 persons an hour. Its driving mechanism is placed within the framework of the machine, reducing installation space and time.

Street Department Has All-Purpose Maintainer

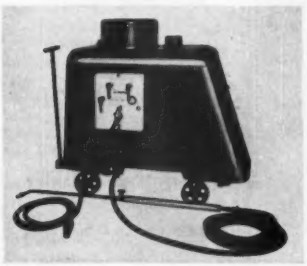
Thirty miles down the Mississippi River from St. Louis, Mo., is the City of Festus, population 4,600, whose street department uses a Huber maintainer for grading alleys, maintaining gravel streets, loading trucks, cleaning out gutters, grading new fills as the dirt is hauled in, towing a roller, and cleaning out ditches and curbs.

Equipped with a grader blade and a lift-loader, the machine also is used for pulling over trees as they are cut and felling them in a safe direction, and for pulling and pushing material down a hill at the city dump.

Henry W. Porter, supervisor of the city's street and water departments, is in charge of the maintainer.

The unit was sold through The Allied Equipment Co., of St. Louis, distributor for the Huber Mfg. Co. of Marion, Ohio.

Combination Steam Cleaner



A new combination steam cleaner and automotive cooling sytem flusher has been reported by the Homestead Valve Mfg. Co., the world's largest manufacturer of steam cleaners.

Known as Model JO Hypressure Jenny with built-in steam thoro-purge, the combination unit is especially useful with fleets of trucks and cars.

Features are an oil-fired, electric-motor-driven steam cleaner which operates at 80 to 120 pounds, pressure and 90 gallons per hour water capacity, and a cleaner that reverse flushes complete cooling systems, including radiator, engine block and water-type heaters, in one operation.

For details, write the Hypressure Jenny Div., Homestead Valve Mfg. Co., P. O. Box 843, Coraopolis, Pa.

Easy to lay MECHANICAL JOINT

M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA

The established line of M & H Standard compression type Fire Hydrants is now available with Standardized Mechanical Joint end connection, for use with Cast Iron Pipe.

Mechanical Joint features are: Ease and speed of installation, construction economy, joint deflection, leak-tight, long life. Used with AWWA Class A, B, C, D; Federal Spec. WW-P-421; or Class 100, 150, 200, 250, centrifugal pipe.

M & H Hydrants can be supplied in accordance with A.W.W.A. specifications, or Underwriters Laboratories and Associated Factory Mutual Laboratories tested and approved.

WRITE FOR CIRCULAR NO. 49

Our New Circular No. 49 shows important installation dimensions of M & H AWWA Mechanical Joint Hydrants and Valves . . . Underwriters and Associated Factory Mutual approved Mechanical Joint Post Indicator Valves . . . and Mechanical Joint end Cutting-In Sleeves.

M&H Products · Everywhere

ADJUSTABLE VALVE BOXES

3-piece Screw Type 5¼" Shaft

At the left is shown our **3-piece screw type** valve box, designed for modern-day street traffic. Below: Our **2-piece extra heavy sliding type** valve box, designed to cover the stuffing box and to slide instead of rotate, is meeting favor with water companies throughout the country.

5¼" Value Box (3-piece Screw Type) Extension:

AA—1'10" to 2'4"
A—2'4" to 3'4"
B—3' to 4'
C—3'6" to 4'6"
CC—4' to 5'
D—3'6" to 5'6"
E—4' to 6'
F—5' to 7'
G—6' to 8'

2-piece Sliding Type 5¼" Shaft

(2-piece Sliding Type) Extension:

5562-S—2' to 3'
5564-S—3' to 4'
5662-S—2'6" to 4'
5669-S—3' to 5'

EXTENSION SERVICE BOXES

2½-inch Shaft

89-A—1' to 1'8"
90-B—1'6" to 2'2"
91-C—1'9" to 2'9"
92-C—2' to 3'2"
92-D—2' to 3'6"
93-D—3' to 4'
93-E—3' to 4'6"
94-D—3'6" to 4'9"
94-E—3'6" to 5'
95-E—4' to 5'6"
100-E—4'6" to 6'
100-F—4'6" to 6'6"

2½ and 3-inch Shaft

3-inch Shaft Extension:

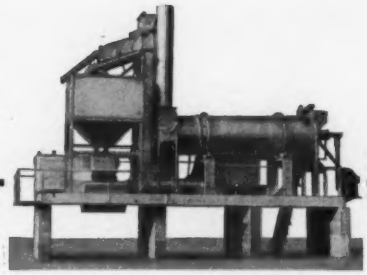
1½—1'6" to 2'4"
2—2' to 3'3"
3—2'8" to 4'
4—2'10" to 4'10"
5—3'6" to 5'6"
7—4' to 6'

2½" Shaft

Besides these boxes we manufacture a great many other patterns and are continually adding new designs to take care of special problems in the water and gas field.

Write for Circular

BUFFALO PIPE & FOUNDRY CORPORATION
Box 55, Station B, Buffalo 7, N. Y.



White Asphalt Plants For Moderate Paving

Complete stationary hot plants, on 1 steel frame, easily moveable, at reasonable prices.

Excellent for medium size city paving. Successful for contractors on all street and highway maintenance; for driveways, sidewalks, industrial plants.

Supplied with oil fired rotary dryer, batch mixer, bitumen heater, vibrating screen, divided hot bin, dust collector, volumetric measure or weight scales; air controls; engine or electric power.

Sizes: L-12, 12-15 tons per hour. Will pave 25' street, 2" thick, one 300' block per day.
L-25, 25-30 tons per hour. Will cover 20' road, 1" thick, at ½-mile per day.

Also portable repair plants, 4 and 8 tons per hour.

Write for catalog and name of nearest dealer.

Elkhart White Mfg. Co. Indiana

GENUINE BRONZE

Memorial Tablets
Honor Rolls
Portrait Tablets
Markers

Distinctive in Design
Artistic in Craftsmanship

Write for Free Catalog

Meierjohan - Wengler
Metal Craftsmen
1102 W. 9th Cincinnati 3, O.

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured ***No Large Bell-holes to Dig***
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years ● Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.

Hotpoint Announces Advertising Manager

William E. Macke, manager of the merchandising division of Hotpoint, Inc., 5600 W. Taylor St., Chicago 44, Ill., has announced the appointment of Clifford C. Gramer as advertising manager, and William C. Bartels as sales promotion manager.

C. C. Gramer

Mr. Gramer, who replaces Richard S. Holtzman, now zone manager of the Los Angeles district, had been assistant merchandising manager. Mr. Bartels was a specialist on several of the company's product lines.

Lubricant for Locks And Parking Meters

Lock-Ease, a new product by American Grease Stick Co., Muskegon, Mich., is said to solve some of the parking meter problems which have caused annoyance to motorists, delayed collections, and resulted in loss of revenue. This graphited lock fluid helps to eliminate coin mechanism and lock failures due to freezing. Applied through lube holes or keyways, it helps to seal out moisture and dust. It contains colloidal graphite in a fluid carrier which penetrates quickly. The carrier then evaporates, leaving a graphite film on working parts. The fluid also contains a rust inhibitor.

The town of Montclair, N. J., uses Lock-Ease in serving its 1,000 Karpark, Mark-Time and Mi-Co parking meters. The City Engineer reports a further saving of 75 to 80% on key breakage in "frozen" locks. Lock-Ease keeps the locks in good condition.

Lock-Ease is available in a four-ounce controlled-flow container which delivers a drop at a time or squirt a pressure stream to flush out moisture and dirt. It is approved by auto and lock manufacturers and major oil companies and is distributed by hardware and automotive jobbers.

Graybar Vice-President

W. E. Henges has been appointed vice-president of the Graybar Electric Co., 420 Lexington Ave., New York 17, N. Y., reports A. H. Nicoll, president of the firm.

Mr. Henges will continue as assistant to the president, a position to which he was named last September. Prior to that time, he was district manager at Cleveland for six years, and at St. Louis for two years.

Mr. Henges is a native of St. Louis and joined Graybar in that city in 1913. He became a Company salesman in 1919 and has been a member of the Board of Directors since March, 1949.

CIRCUL-AIR
FIRE HOSE DRYER

WRITE FOR BOOKLET

Illustrates how Circul-Air saves hose, shortens drying time, prevents mildew and rot, air conditions as it dries, improves station design.

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

KILL INSECT PESTS with
IRON AGE
MIST SPRAYERS

Users everywhere praise the performance of Farquhar Iron Age Mist Sprayers on golf courses, parks, playgrounds, swimming pools, tourist courts, picnic grounds, and other places where insect pests are a problem.

Here are the outstanding features of the Farquhar Iron Age Model 125: 22 hp, 4 cylinder Wisconsin engine drives sturdy cast aluminum axial flow fan at 87% efficiency, delivering 6,000 to 11,000 cubic feet of air per minute at 90 to 125 mph. New, efficient spray jets meter *exactly* the right amount of mix, either oil or water, to center of high velocity air stream, insuring complete misting of concentrate. Spray jets can be changed quickly to alter droplet size. Turret rotates 360° for full control of air blast. 125 gallon tanks are available with trailer or skid mounting. Comfortable spring seat for operator.

Find out *now* how Farquhar Iron Age Mist Sprayers can make your pest control program *far more effective at less cost.*

Write A. B. FARQUHAR COMPANY, 3536 Duke St., York, Penna.

Farquhar
IRON AGE
YORK, PA.
POTATO AND VEGETABLE PLANTERS • TRANSPLANTERS
SPRAYERS • DUSTERS • POTATO DIGGERS • WEEDERS
MANURE SPREADERS • CONVEYORS • JUICE PRESSES

PLANT AND SPRAY THE IRON AGE WAY

Air Curtain Guide Plates

For Perfect Traffic Lines:

AIR CURTAINS, basic feature of all Kelly-Creswell Equipment, make possible the application of clean-cut, attractive lines without coming in contact with the surface.

Special striping guns by DeVilbiss, air actuated traction and pressure-cleaning equipment also feature K-C equipment. These are the reasons why more Highway-Zone-marking material is applied through K-C equipment than through any other make.

TRUCK-MOUNTED AND PORTABLE EQUIPMENT AVAILABLE.

There is a Kelly-Creswell Model that will solve your zone-marking problems.

KELLY-CRESWELL CO., Xenia, Ohio

WITH EACH SEASON'S PASSING

THIS ROAD GIVES BETTER SERVICE . . .

Blending with every landscape and free from glare, roads built with Tarvia* road tar take the strain out of driving. They are self-healing under impacting traffic.

The heat-absorbing qualities of black roads built with Tarvia* road tar make them easier to keep open in winter as snow and ice melt more quickly. And they are not affected by chemicals used to remove snow and ice.

because

1. Roads built with Tarvia* road tar improve with age. Occasional applications will renew the life of the surface, and replace worn-away material.

2. TARVIA road tar penetrates surfaces and binds together the underlying material. It thus makes possible the inexpensive use of local aggregates.

3. Less TARVIA road tar is required because there are less solvents to be evaporated before the binder becomes effective.

4. TARVIA road tar is unaffected by gasoline, kerosene, or moisture. It retains its original properties.

5. TARVIA road tar holds the aggregate tightly in the surface, and produces a gritty surface which is lastingly skid-resistant.

6. TARVIA road tar may be applied at moderate temperatures, and with ordinary equipment.

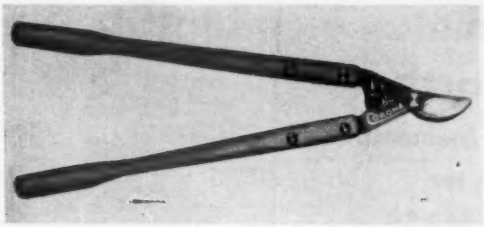
The Barrett field man is always at your call for expert practical advice.

Barrett* Tarvia* ROAD TAR

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

*Reg. U. S. Pat. Off.

New York • Chicago • Birmingham • Detroit • Philadelphia • Boston • Rochester • Youngstown • Ironton, O. • Syracuse • Buffalo • Bethlehem, Pa. • Portland, Me. Norwood, N. Y. • Oneonta, N. Y. • Elmira, N. Y. • Cromwell, Conn. • Norwich, Conn. In Canada: THE BARRETT CO., LTD., Montreal • Toronto • Winnipeg • Vancouver



Corona's CV195 with bolted-on handles.

Midget Pruner

Corona Clipper Co.'s midget pruner No. CV195, which weighs only 20 ounces, is available with the popular bolted-on type of handle if desired, according to Freeman Kirwin, sales manager for the firm.

The Corona CV195 lopper is 19½ inches long, has carefully ground blade and hook of steel, insuring lasting sharpness. Handles are of seasoned hickory, selected according to rigid government specifications. The CV195 lopper is equipped with a neoprene bumper which takes the sting out of pruning tasks.

Although the CV195 is small and light, it can do rugged work and withstand usage expected on a heavier type lopper. The midget lopper may also be obtained with ferruled-on type handles, if desired.

Information on the complete line of hand pruning tools may be obtained by writing Corona Clipper Co., 510 Ramona Ave., Corona, Calif.

New Laboratory Building

Dr. Foster Dee Snell, president of the research and engineering firm of Foster D. Snell, Inc., has reported the letting of contracts for the first unit of their laboratories in Bainbridge, N. Y. Construction will be of concrete and brick on approximately one acre acquired for the purpose.

According to Dr. Snell, the project does not envisage any change at present in their activities in New York. It does provide for future expansion and in particular for the carrying on of long-term projects in a rural area where living costs for personnel are substantially lower than in the large cities. When conditions require more space, separate departments can be transferred from New York to the new location to relieve congestion in their present building at 29 W. 15th St., New York 11, N. Y.

BRAXMAR BADGES

Standard Badges Since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Voit, Pres.

C. G. Braxmar Co., Inc.
216 E. 45th St., New York 17, N. Y.

American Vacuum Leaf Loader
Solves your leaf or clean-up problem

Write for leaflet

LEAF LOADER DIVISION
American Structural Steel and Tank Co.
21050 W. 8 MILE ROAD DETROIT 19, MICH.

Bright by Day- BRIGHTER By Night WITH KERRIGAN STANDARDS Like These

Daytime view with two of the antiquated lamp posts formerly used to "light" the town (note the contrast to the modern Kerrigan Weldforged Standard at left).

Same scene lighted by the new Kerrigan Standards, with streets and sidewalks brighter by night than shown in the daytime picture above.

Drive safely . . . walk safely . . . on well-lighted streets in YOUR town! Kerrigan Weldforged Lighting Standards, designed and engineered to shed their light at the ***driving*** and ***walking*** levels, can make night-driving both easy and safe in your city. Kerrigan standards meet the highest engineering standards for highway and street lighting. Write today for Catalog AIA for detailed specifications.

FREE

Just send your request (on your letterhead, please) to—

KERRIGAN IRON WORKS, INC.
General Sales Office
274 MADISON AVENUE, N. Y. C.

New 300 ton
Nichols Monohearth

Mechanically Stoked Refuse Incinerator

Now under construction for

TOWN OF BROOKLINE, MASS.

Metcalf & Eddy, Boston, Consulting Engineers

NICHOLS
ENGINEERING & RESEARCH
CORPORATION
70 PINE STREET
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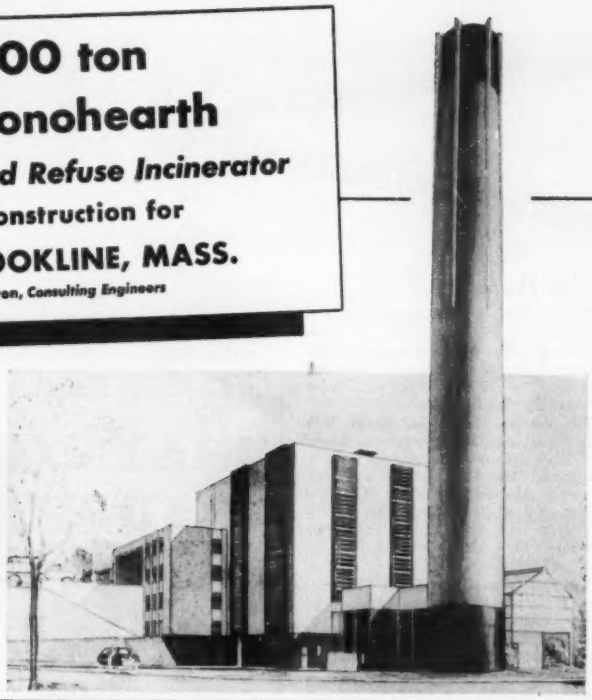
PACIFIC COAST OFFICE
40 S. LOS ROBLES AVE. PASADENA 1, CALIF.

IN CANADA
1477 SHERBROOKE ST. WEST,
MONTREAL 25



AMERICA'S LARGEST MANUFACTURER OF PIPE CLEANING TOOLS

"FLEXIBLE"

UNDERGROUND PIPE CLEANING CO. — **SEWER-ROD EQUIPMENT CO.**

9059 VENICE BOULEVARD, LOS ANGELES 34, CALIFORNIA

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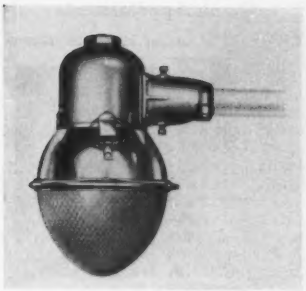
P. O. Box 167, Los Nietos, Calif. — 41 Greenway St., Hamden, Conn. — 3786 Durango Ave., Los Angeles 34, Calif. — 709 House Bldg., Pittsburgh 22, Pa. — 4455 S. E. 24th Ave., Portland 2, Ore. — 251 W. Jefferson Blvd., Dallas, Texas



Joslyn Junior Luminaire

For Street Lighting

The Joslyn Mfg. and Supply Co. has issued a new Street Lighting Equipment Catalog which lists both enclosed glassware and open-type luminaires, and many component items for street lighting.

The new Joslyn Junior Luminaire is ideal for residential streets, giving a compact, low-cost, glassware-enclosed light source for 1,000 or 2,500 lumen incandescent lamps. Available now in I.E.S. Types IV and V light distributions, the model has a slip-fitter or top-mounted cast-aluminum head for inner wiring and a highly polished Alzak-spun aluminum reflector to which globe is attached by means of the Joslyn wedge band construction.

The Senior Luminaire provides high-intensity illumination with 10,000 or 15,000 lumen incandescent lamps or with 16,000 or 21,000 lumen mercury vapor lamps. This unit is especially suited to streets 60 feet or more in width.

The new Joslyn 18-8 stainless steel radial bowl reflector is listed together with vitreous enameled steel and Alzak aluminum reflectors for open-type luminaires.

The catalog also describes various pipe brackets and mast arms, street-lighting glassware, steel poles, steel-pole accessories, and multiple circuit control relays. For a copy of this publication, write to the Joslyn Mfg. and Supply Co., 20 N. Wacker Drive, Chicago 6, Ill.

A Correction

In the November issue, THE AMERICAN CITY published a news story on page 209 reporting on the new street lighting catalog issued by the Joslyn Mfg. and Supply Co., 20 N. Wacker Driver, Chicago 6, Ill.

Two errors occurred in this story. First, the article's title was "Full Line of Street Signs" instead of "Full Line of Street Lighting Equipment." The second error was in stating that the Joslyn Luminaire shown was "with plain slip fitter." It was not thus equipped.

The catalog referred to is entitled, *Joslyn Street Lighting Equipment*. The company will supply copies to interested officials on request.

Snow Plow Defies Rocky Mountain Area

The heavy snows of the Rocky Mountains did not deter the efficient work of the new Model SP-516 rotary snow plow, a product of the Trio Mfg. Co. Expressly designed for use on the farm and highways, the Trio Plow simplifies the work of clearing snow from roads, feed floors, around feed racks, hay stacks, and yards. It also is ideal for municipal snow removal from streets and sidewalks.

This machine has a working span of six feet, is sturdily built with a grader blade of high-carbon steel across the front, driven from the belt pulley with

a No. 60 roller chain, and has self-aligning bearings. Constructed of heavy gauge steel and weighing 700 pounds, the SP-516 is hydraulically operated.

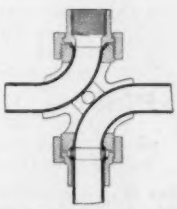
Write Trio Mfg. Co., 437 N.E. Harding St., Minneapolis 13, Minn., for catalog.

For an Ideal

BASEMENT SETTING

The Ford Copperhorn provides a permanent, solidly lined-up setting for basement meters installed on vertical pipe lines. Even when meters are changed, the piping remains connected.

The meter is set horizontally and at the most convenient height for easy reading. Smooth waterways—see diagram at right—cut pipe friction or pressure loss to less than half that through ordinary fittings. Economy and permanent, trouble-free service is assured.



Note the smooth all-copper waterways that reduce friction to a minimum. Connections optional for either copper or iron pipe.

FREE Send for Catalog that shows the complete Ford line of economical meter setting products.

FOR BETTER WATER SERVICES

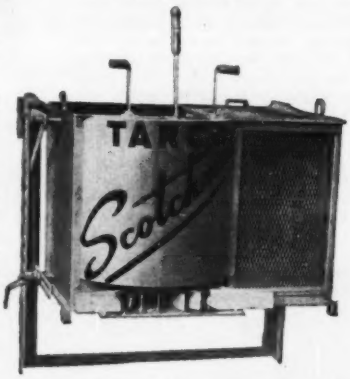
FORD

THE FORD METER BOX COMPANY, INC. Wabash, Indiana

EMERGENCY CONTROL

is possible by using a stainless steel "Scotchman" spreader and clear de-icing salts (no sand, no cinders).

The thrifty "Scotchman" method is far CHEAPER than sand or cinders. It is eight times FASTER. It keeps drainage open and provides BARE, SAFE pavements.



You SAVE when you SALT with a "Scotchman"

COMPLETE CONTROL: *direction, width, and rate of spread.*

WEATHER-PROOFED ENGINE • ELECTRIC STARTER

BAGGED or BULK SALT • USE on ANY TRUCK or PICKUP

Literature? Demonstration?

TARRANT MFG. CO. EAST AVE., SARATOGA SPRINGS, N. Y.

WATER RATES

from selected cities across the country, with data on the type of water system each supports.

Plus —

SEWER SERVICE CHARGES

now in successful use supporting well-operated sewage works giving examples of charges based on

plumbing fixtures
water use
strength of industrial waste

Plus —

WRITTEN DISCUSSION ON

what types of water rates are in use and how to select the one your community needs

- **How to set a minimum water rate that means something**
- **What to charge out-of-city customers**
- **What hydrant rental really means and how to calculate it fairly**
- **How to frame a sewer service charge that works**

— 64 pages — price $2.00

MAIL THIS COUPON FOR YOUR COPY to
The American City, 470 Fourth Avenue, New York 16

Yes, please send me by return mail ..... copies of your WATER RATES AND SEWER SERVICE CHARGES at $2 per copy.

☐ I am sending a check with this order
☐ Please bill me for my copies when they are sent

Signed .....

Title .....

Address .....

City ..... State

Shunk Appointments

Raymond F. Allen has been named general manager of the Shunk Mfg. Co., Bucyrus, Ohio, manufacturers of blades for all types of earth-moving equipment.

R. F. Allen

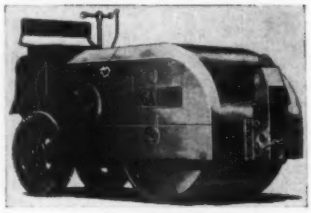
Also reported was the appointment of Clayton B. Humphrey as eastern district sales representative, and J. W. Tufford as northwestern district sales representative.

Mr. Humphrey will have his headquarters in Schenectady, N. Y. His territory will include the New England states, New York, Pennsylvania, east coastal states, Virginia, West Virginia and the eastern part of Canada, including Toronto.

Mr. Tufford, with headquarters in Minneapolis, Minn., will cover Wisconsin, Minnesota, North and South Dakota, Iodwa, and Nebraska.

New Portable Roller And Motor Grader

Motor Grader



Portable Roller

The Galion Iron Works & Mfg. Co., Galion, Ohio, has announced production of the Galion No. 118 motor grader and the new model Galion variable weight portable roller.

The firm reports that the motor grader, of the extra heavy-duty class, features a greatly improved transmission of the constant-mesh type. It has six overlapping forward speeds, ranging from 1.3 to 22.6 mph; two reverse speeds; a 100-hp diesel engine; positive all-gear four-wheel tandem drive, and full hydraulic control.

The portable roller has over-center, forward and reverse clutches; easily adjusted twin disc, and a newly designed hydraulically operated towing hitch which folds back compactly against roller housing when not in use.

Division Sales Manager

The J. D. Adams Mfg. Co., Indianapo-6, Ind., announces the appointment of E. L. Cline as western division sales manager. He will be in charge of sales activities in a territory comprising all of the states west of the Mississippi River plus Wisconsin, the upper peninsula of Michigan, and part of Illinois.

E. L. Cline

Large-Capacity Inlets

Plenty of drainage capacity seems to be the trend in street drainage inlets, and the one designed by the Neenah Foundry Co., Neenah, Wis., fits this trend nicely. R-3288 has a clear curb opening of 73 inches horizontally and a vertical opening adjustable to the curb height. It has two curb-apron castings, each measuring approximately 30 by 17 inches and composed of bars with openings running parallel with the traffic. The space between the bars is 1½ inches wide. The bars themselves are 1⅛ inches wide. The casting is supplied with a distinct slope to the curb opening to encourage drainage. This slope can be supplied at 4, 2¼ or 2 inches in a 14¾-inch casting width.

This is one of several catch-basin inlet designs manufactured by this company. Among its products also are aeroplane mooring eyes for airport use, drainage grates, special cast-iron pipe fitings, various types of manhole covers, castings used in sewage treatment plants and sewage manholes, cast-iron curb and sidewalk guards, non-tip street warning flag bases, and portable sign and marker bases.

The company has a complete catalog describing in detail these various castings and can supply fast railway and truck service to all parts of the United States.

Improved Surfacing For Sidewalks, Floors

United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio, announces a major improvement in its nationally known Plastic Rock surfacing for sidewalks and floors.

This new development is known as Superset Plastic Rock, designed especially for resurfacing old floors of concrete, wood or steel. This product provides a tougher, more durable floor for heavy traffic surfaces, and its hardening speed reduces the application time.

Superset is delivered in complete unit form containing all the ingredients, except water, ready for mixing on the job. It is available in several gradings, depending on the type of application for which the material is required.

How CLEANLINESS is AUTOMATIC with Bennett Bilt WASTE RECEPTACLES

● Everybody is automatically a member of your cleaning department by conveniently placing Bennett Bilt Waste Receptacles to invite their use. These waste receptacles are sanitary, economical and a major help to cleanliness and neatness. *Put them to work for you today.*

ONLY Bennett Bilt WASTE RECEPTACLES HAVE ALL THESE FEATURES

- Non-rusting stainless steel feet eliminate rusting and rust marks
- Made of extra heavy-gauge Mayari R, Bethlehem's corrosion resistant steel
- All-welded construction
- Smooth exterior surface . . . nothing to catch and tear clothes
- Reinforced corners
- Strong springs keep doors closed providing greater sanitation and eliminating fire hazards
- Rounded corners for structural strength and pleasing appearance
- Baked enamel finish . . . white or green

These are a few of the many features that make Bennett Bilt Waste Receptacles a natural "buy." Quality and every consideration for hard usage are self-evident both inside and outside of these receptacles.

Write for fully-illustrated catalog TODAY.

Independently hinged doors
High tension springs keep doors closed
Burlap bags or galvanized liners are quickly removed

THE BENNETT MANUFACTURING CO., ALDEN, N. Y.
CUSTOM METAL CRAFTSMEN SINCE 1906

THE HAZARDS ENTIRELY ELIMINATED

The known hazard to public health caused by the pollution of water supplies through plumbing back-siphonage has been entirely corrected and eliminated in this MURDOCK Outdoor Drinking Fountain.

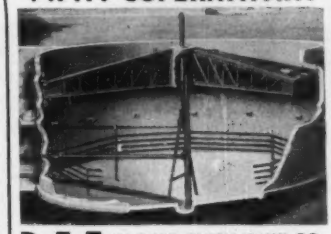
Wherever that danger exists even remotely this is the Fountain to install. No cross connections between outside sources of pollution and supply line.

Write for illustrated folder.

The Murdock Mfg. & Sup. Co.
Cincinnati 2, Ohio

MURDOCK
OUTDOOR DRINKING FOUNTAINS
HYDRANTS
STREET WASHERS

P.F.T. SUPERNATANT SELECTOR



Provides positive means of selecting and removing best supernatant liquor from digestion tanks at slow, continuous rate, regardless of location of supernatant in tank. Vertical slotted tube of selector extends thru all zones where strata of supernatant form. Effective capacity of tank for reduction of solids is increased. Rate of withdrawal is controlled with P.F.T. Supernatant Gauge, Sight-Glass and Sampler. Bulletin 243.

P.F.T. PACIFIC FLUSH TANK CO.
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Portable Crane

Developed and built for flexibility, durability, economy, safety, and speed is the Memco portable crane, a product of the De-Lux Neon Mfg. Co. It weighs 1,400 pounds and has an extended reach from 44 to 46 feet, depending on the height of the truck bed. The machine revolves 360 degrees right or left, and is automatically locked in place against wind pressure or pull where you stop turning.

Designed for economy is this portable crane which can be raised and lowered manually or electrically.

The machine is compact enough to mount on a ¾-ton pick-up truck and sufficiently substantial to work on a two-ton truck.

Among the other features are: pressure lubrication which is provided at all vital points; a safety lock that eliminates the possibility of trouble, and bronze-lined radial bearings to prevent steel-to-steel friction.

The Memco portable crane can be employed for erecting signs, line transformers, light steel sections, prefabricated building sections, and building stone.

A descriptive pamphlet will be sent on request by the De-Lux Neon Mfg. Co., 1107 N.W. 36th St., Oklahoma City 3, Okla.

Caterpillar Promotions

The promotion of four members of the Manufacturing Dept., Caterpillar Tractor Co., Peoria 8, Ill., has been announced by H. S. Eberhard, vice-president.

J. R. Munro, general factory manager since February, 1942, has been appointed to the newly-created position of director of manufacturing; C. A. Woodley, has been named general factory manager, and W. L. Naumann and Lloyd J. Ely, assistant general factory managers.

J. R. Munro

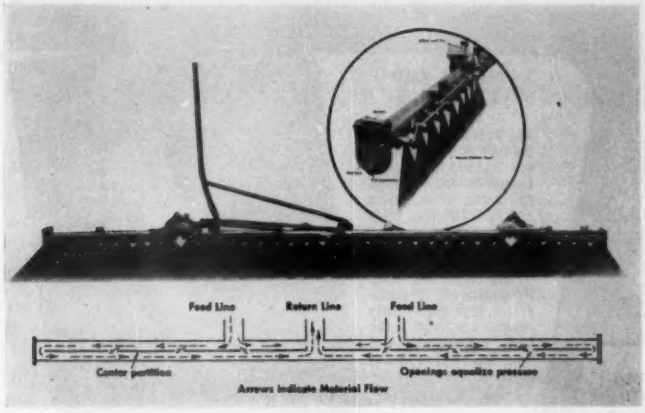
C. A. Woodley

W. L. Naumann

L. J. Ely

Mr. Naumann will supervise production, planning and tooling metallurgy and heat-treat activities.

Mr. Ely's new duties will include direction of activities in the foundry, engine, tractor and steel fabrication factories.



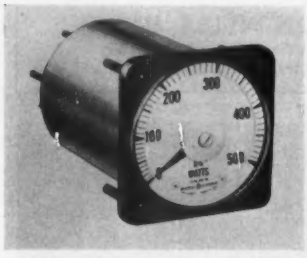
New "Hot" Spray Bar Fits All Distributors

A new, non-clogging, no-drip asphalt spray bar to fit all distributors has been announced by the Wm. Bros Boiler and Mfg. Co. Developed by H. A. Cartwright, the bar, known as the Bros Spraymatic, is specially built for dependable handling of heavy bitumen material. It is a full circulating, 3-section hot bar, designed to eliminate non-uniform distribution, leaky valves, fat and lean streaks and clogged orifices.

Among the exclusive Bros Spraymatic design features are the positive end-to-end circulation system accomplished by means of a center partition the length of the bar; the new, non-clogging, self-screening nozzles and the ring packed, non-leaking, 45-degree joints.

Write to the Wm. Bros Boiler and Mfg. Co., 1057 10th Ave. S.E., Minneapolis 14, Minn., for complete details.

New Switchboard Instruments Have Shadow-Free Lighting



A new cover design which permits shadow-free illumination of instrument scales with conventional room lighting is the feature of a new line of 4¼ inch, long-scale switchboard instruments announced by the Meter and Instrument Division of General Electric, Schenectady 5, N. Y.

The instruments employ a protruding convex-type glass cover that permits the scale to be mounted flush with the front of the instrument case, while providing clearance for moving parts. This cover design eliminates scale shadows from overhead lighting caused by cover overhang.

The new "18" instruments are designed for general switchboard service on both large and small equipment. They are mechanically interchangeable with the established line of G-E long-scale instruments and are available in generally used ratings for a-c and d-c circuits. Models include d-c ammeters and voltmeters and a-c ammeters, voltmeters, wattmeters, frequency meters and power-factor meters.

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House Numbering Systems for Cities

Proper house numbering avoids duplications and the attendant confusion in addresses that bewilder mailmen and taxi drivers as well as others. It can easily be avoided if a proper system is installed by the municipality.

SEND FOR ANALYSIS

Send for the special bulletin illustrating the approved house numbering system.

PREMAX PRODUCTS
DIVISION CHISHOLM-RYDER CO., INC.
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FOR SNOW, LEAVES, DIRT, TRASH, SAND AND GRAVEL

SCOOPS · LOADS · DIGS · DOZES . .

Here's a fast-moving piece of equipment which will play a major part in keeping your city clean all year around. In the winter it scoops snow and ice, scatters sand on slick streets. In the spring you'll find the Skyline Loader scooping dirt and leaves from gutter, moving trash, loading sand and gravel for resurfacing roads, even handling garbage. You'll find your new Skyline "90" Loader the best investment your city ever made.

FOR FURTHER INFORMATION WRITE DIRECT

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ONLY WITH
GOLDAK EQUIPMENT

The name GOLDAK on electronic instruments, eliminates guesswork . . . it's your assurance of Pin Point Detection at all times, in any kind of weather. Throughout the world, with companies who need instruments that are accurate and durable, first choice is GOLDAK.

MODEL L46
SENIOR
LEAK DETECTOR
Detect costly leaks in water and low viscosity fuel lines, in their exact position. Completely portable, simple to operate. Latest electronic improvements and high quality parts, assures unequalled performance. Save time and labor, eliminate costly waste leakage with Goldak Model L46.

MODEL 620
BOX & VALVE
LOCATOR
Pin Point Detection of Goldak's Model 620, saves you time and money, with immediate location of Buffalo Boxes, Valves, Covers and Buried Metals. Large areas surveyed in a few moments. Sharp, clear signals. Untiring operation, weighs only 8 lbs. Sturdily constructed, all-weather use. High quality parts assures maximum sensitivity, low operating and nominal replacement costs.

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Since 1933

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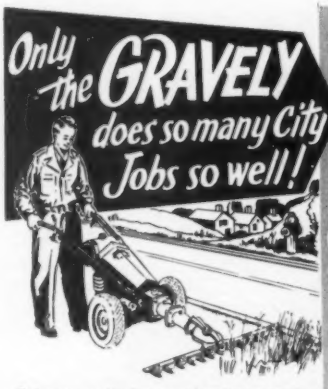

Solve your city lawn and maintenance problems—and save time and money too! . . . The powerful 5-HP. Gravely Tractor does 20 jobs faster, better, easier! 20 tools to choose from for your particular needs, all powered by the same rugged, dependable tractor!

All-gear drive, power reverse, city-tested for 30 years!

"Power vs Drudgery" tells how Gravely POWER solves your city upkeep and maintenance problems fast! Write for it today!

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The Albert Dickinson Company, 2764 West 35th Street, Chicago 32, Ill.

DICKINSON

Hyster Eastern Appointment

Robert F. Moody has been named assistant sales manager in the eastern division, reports C. H. Collier, Jr., area sales manager, of the Hyster Co., of Peoria and Danville, Ill., and Portland, Ore.

R. F. Moody

With his new headquarters in Peoria, Mr. Moody will work directly with the concern's 28 dealers and 7 district managers of the eastern division.

The strength and wrapping characteristics of Fiberglas Pipe Line Outer Wrap have permitted increases up to 50% in the amount of wrapping done in a day. Parallel-reinforced Coromat (Fiberglas underground pipe wrap), was used in the conventional manner to reinforce the enamel.

Steel Pipeline Protection

Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo, Ohio, has announced a new product, Fiberglas Pipe Line Outer Wrap. A strong, corrosion-protective material, it is designed to act as an exterior protection for underground pipe lines. The Fiberglas Pipe Line Outer Wrap is composed of asphaltic compounds with or without tar components reinforced in all directions by a glass fiber mat and longitudinally by strong Fiberglas yarns.

The company also manufactures Coromat underground pipe wrap. In a normal operation, Coromat is applied to the pipe over the bitumen, followed by the application of the Fiberglas outer wrap. Due to the porosity of the Coromat and the outer wrap, the bitumen penetrates both thicknesses, resulting in a complete locking of the materials.

Field tests were conducted on 22,700 feet of pipe in Iowa, with an experienced crew using conventional wrapping materials. The experience here with an average coverage of 8,000 feet a day, resulted in about 100 "holidays" with 20 to 30 breaks of wrapper per mile.

Under the same operating conditions, the crew wrapped 11,000 feet of pipe in one day without a break and detected only three natural "holidays" when Fiberglas Pipe Line Outer Wrap was used. On the second day of the test run, the crew wrapped nearly 12,000 feet of pipe with Fiberglas Pipe Line Outer Wrap, again without a stop due to breakage and with a minimum of "holidays."

Fiberglas Pipe Line Outer Wrap will withstand storage and handling at temperatures from 0° F. to 150° F. Tests indicated satisfactory application with enamel temperatures up to 500° F. The outer wrap will not crack when applied during zero weather.

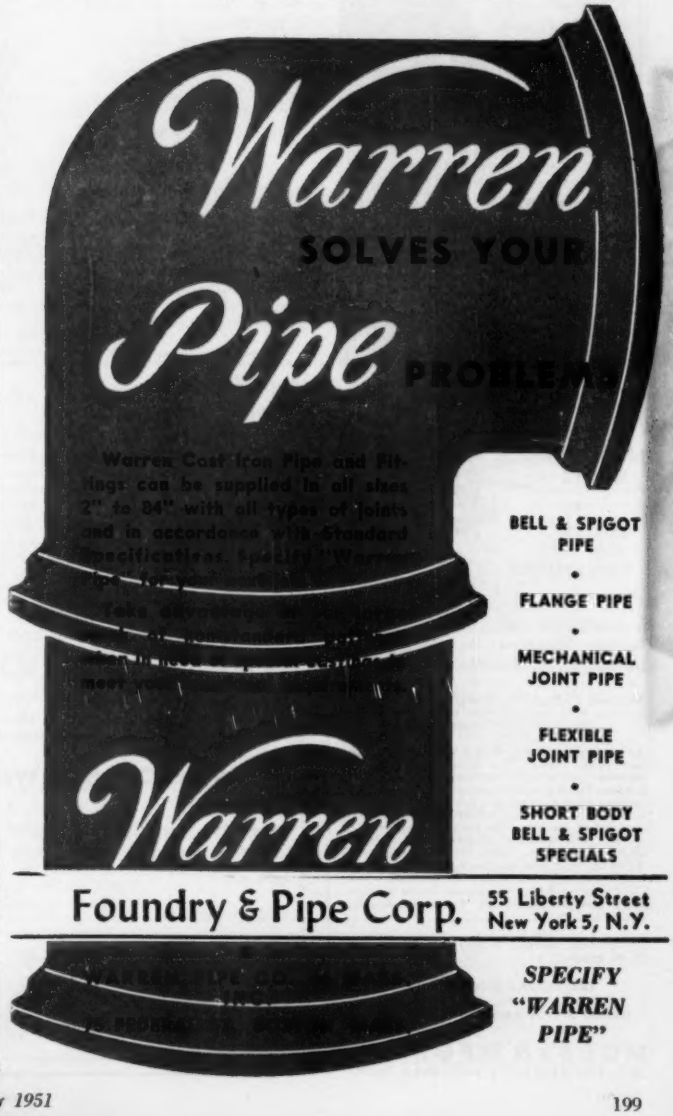
Fibre Broom Opens Detroit Branch Office

The Brooklyn Fibre Broom Co., Inc., 47 Dinsmore Place, Brooklyn 8, N. Y., reports the opening of a new branch office at 600 Michigan Bldg., Detroit, Mich., with Henry G. Meyers as manager.

This office will serve the middle Atlantic states with Perfex fibre brooms which have been manufactured for the past 25 years.

Sales Director

M. B. Garber has assumed the position of sales director for The Thew Shovel Co., 28th St. and Fulton Road, Loraine, Ohio, it has been reported by A. W. Smythe, vice-president and general manager.



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Only PATHFINDER offers all vital features you want . . . combined in one handy, compact unit. Quickly, accurately it locates position and depth of pipes, tees, valves, buried tools. The liberal trade-in plan gives you an added opportunity to save. Get the facts and you'll buy PATHFINDER!

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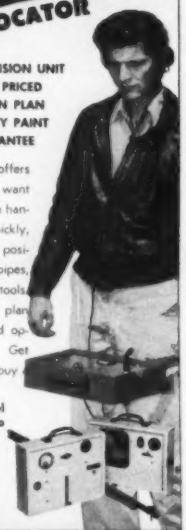

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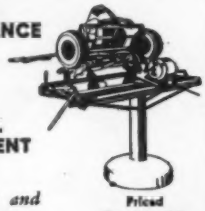

Economically and Quickly Sharpens All Municipal Mowers

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1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

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New Counting Device Aids in Traffic Control

Municipal traffic engineers have found the traffic control Denominator tabulator a valuable aid in maintaining accurate count of constantly changing statistics, according to the manufacturers, The Denominator Co., Inc., 261 Broadway, New York 7, N. Y.

The new device counts the flow of vehicles over any intersection; several Denominators placed in a bank will count all cars turning left, right, or going straight ahead. This method of counting can be used to analyze traffic flow, and to determine the type of signal system to be installed for better control of traffic.

The Denominator is indispensable in other municipal work where "keeping count" is a basic factor in routine operation, the manufacturer states. A booklet describing the many uses for the Denominator may be obtained by writing to the company.

Moves to Stamford

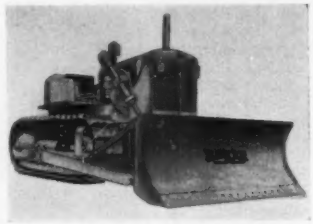
The Eastern Sales Office of The Dorr Co., formerly located at 570 Lexington Ave., New York, N. Y., was moved Dec. 15th to the firm's general office location at Barry Place, Stamford, Conn. A branch office will be continued at the former New York City address.

Asphalt Institute Names Rhoades

Bernard E. Gray, president of The Asphalt Institute, 801 Second Ave., New York 17, N. Y., reports the appointment of Cecil E. Rhodes as a special projects district engineer of the Institute, with office in the Cobb-Stebbins Bldg., 1250 Stout St., Denver, Colo. He succeeds Walter F. Winters, recently promoted to the post of chief engineer.

Mr. Rhodes will be in charge, on a national scale, of the organization's special studies of asphalt uses in developing the Reclamation Program, including canal, reservoir, and pond linings, dam facings, and erosion control.

Bigger, Better Bulldozers In Production



The new HD-9 Allis-Chalmers tractor with bulldozer is power-packed for rough service.

The Baker Mfg. Co., Springfield, Ill., reports the production of new bulldozers, grade builders, and root rippers for the new and more powerful models HD-9 and HD-15 Allis-Chalmers tractors.

Both engine-mounted Hydraulic and cable-operated models are vailable for the three larger tractors.

The implements complete the line of matched earth-moving equipment for A-C tractors since Baker previously announced new blades for the largest and most powerful unit, the HD-20 and the smallest, the HD-5.

Both engine-mounted hydraulic and cable-operated models are available for the three larger tractors. Blades for the HD-5 come only in the hydraulic-control type.

All of the styles retain the special Baker features of direct lift, positive down pressure, positive hydraulic hold, and engine accessibility. Achievement of "fingertip" control for the new Baker attachments is the outstanding design feature gained through the short linkage between blade-control lever and hydraulic-control valve.

The Baker line also includes sheeps'-foot tamping rollers, heavy-duty rippers, snow plows, and power-controlled units.

Complete specifications on Baker equipment are available from all Baker-Allis-Chalmers dealers or directly from The Baker Mfg. Co.

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A new fast way to cover icy walks and drives with sand, ashes, cinders, salt, etc.

Hopper capacity, 1 yard.

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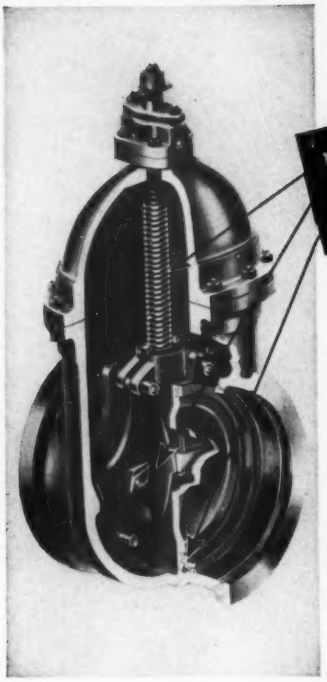
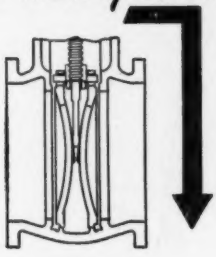


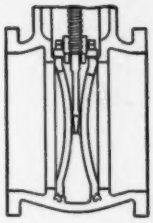
1. Continued turning of valve stem.
2. Brings wedges into action and expands the discs against their seats.
3. After disc travel ceases.

Why SMITH GATE VALVES DO NOT WEDGE PREMATURELY

All the Way DOWN



and then OUT



Because of its unique *side* wedging action, the discs of a Smith Gate Valve are not expanded laterally until *after* they have completed their travel and fully cover the ports. Termination of the discs' travel and further turning of the valve stem actuates the wedges and expands the discs. In opening, the action is reversed, the wedges are fully released before the discs commence to travel to an open position.

Smith Gate Valves are made in all types and sizes for manual, hydraulic cylinder, or motor operation and for low—medium—high pressure services.

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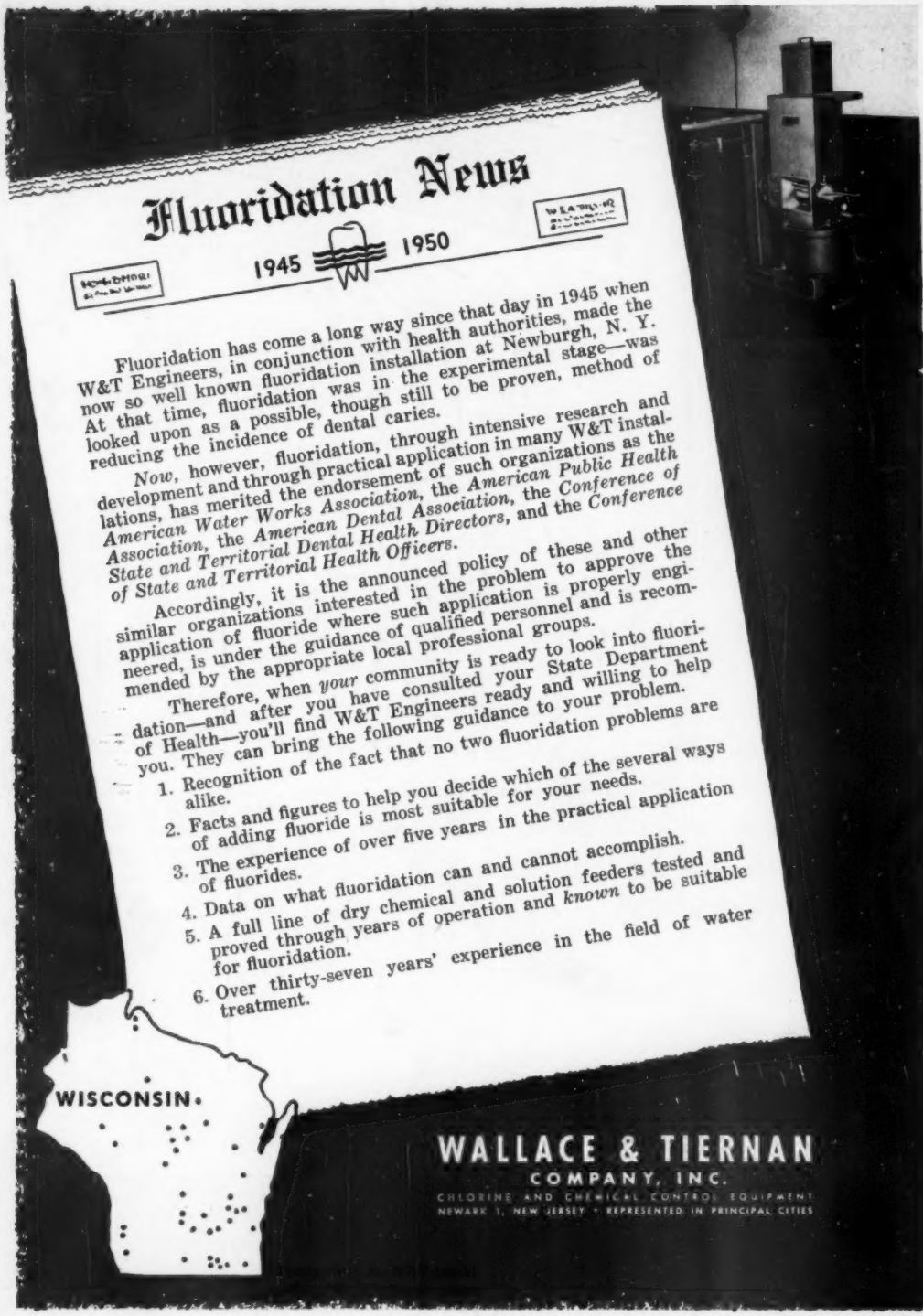
FIRE HYDRANTS
GATE VALVES
CHECK VALVES
INSERTING VALVES
TAPPING SLEEVES AND VALVES
WATER SERVICE BRASS GOODS

THE A. P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY

FLOOR STANDS
INDICATOR POSTS
TAPPING MACHINES
INSERTING MACHINES
PIPE CUTTING MACHINES
CORPORATION TAPPING MACHINES


Fluoridation News
1945 1950
Fluoridation has come a long way since that day in 1945 when W&T Engineers, in conjunction with health authorities, made the now so well known fluoridation installation at Newburgh, N. Y. At that time, fluoridation was in the experimental stage—was looked upon as a possible, though still to be proven, method of reducing the incidence of dental caries.
Now, however, fluoridation, through intensive research and development and through practical application in many W&T installations, has merited the endorsement of such organizations as the American Water Works Association, the American Public Health Association, the American Dental Association, the Conference of State and Territorial Dental Directors, and the Conference of State and Territorial Health Officers.
Accordingly, it is the announced policy of these and other similar organizations interested in the problem to approve the application of fluoride where such application is properly engineered, is under the guidance of qualified personnel and is recommended by the appropriate local professional groups.
Therefore, when your community is ready to look into fluoridation—and after you have consulted your State Department of Health—you'll find W&T Engineers ready and willing to help you. They can bring the following guidance to your problem.
1. Recognition of the fact that no two fluoridation problems are alike.
2. Facts and figures to help you decide which of the several ways of adding fluoride is most suitable for your needs.
3. The experience of over five years in the practical application of fluorides.
4. Data on what fluoridation can and cannot accomplish.
5. A full line of dry chemical and solution feeders tested and proved through years of operation and known to be suitable for fluoridation.
6. Over thirty-seven years' experience in the field of water treatment.
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